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DENVER, COLORADO

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from the front and 4 inside the record changer compartment.
2. Release 7 clamps holding the TV rear cover and remove the cover.
3. Remove 2 wood screws and the amplifier cover.
4. Remove 2 metal screws from the side escutcheon.
5. Remove 2 metal screws holding the side control panel.
6. Remove 2 wood screws holding the AC interlock bracket.
7. Remove the picture tube socket, ion trap, yoke clamp, HV lead, amplifier plug and audio plug.
8. Remove 1 wood screw from the tuner brace.
9. Remove 1 wood screw from the top chassis brace.
10. Remove 4 chassis bolts from the bottom.
11. Remove the TV chassis and yoke.
12. Release clamp holding the volume control bracket.
13. Remove the speaker plug, phono power plug and phono output plug.
14. Remove 4 hex nuts holding the amplifier chassis.
15. Remove the amplifier chassis.

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MODEL HL323A6B (CH. 23HF1B)

TRADE NAME	Admiral	MODELS	CHASSIS
		HL323A6, HL323A7, HL323A8, HL323A9	23HF1
		HL323A6B	23HF1B
		(Amp. Chassis)	6A3
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois		
TYPE SET	Television Receiver and Audio Amplifier with 4 Speed Automatic Record Changer		
TUBES	TV - Seventeen Amp. - Six		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	TV - 215 Watts, 2 Amp. @ 117 Volts AC Amp. - 64 Watts, .64 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 25.75MC, Sound IF 21.25MC (Intercarrier)		

RECORD CHANGER - ADMIRAL MODEL RC646-1

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 push-on type knobs from the front. Pull off the name plate and remove 2 metal screws now accessible. Remove 4 metal screws from the bottom holding the bottom of the mask assembly. Pull bottom of mask and safety glass out and down to remove.

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A10) located on bottom of chassis.

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart).

ADMIRAL MODELS HL323A6, B, HL323A7, 8, 9 (Ch. 23HF1, B, Amp. Ch. 6A3)

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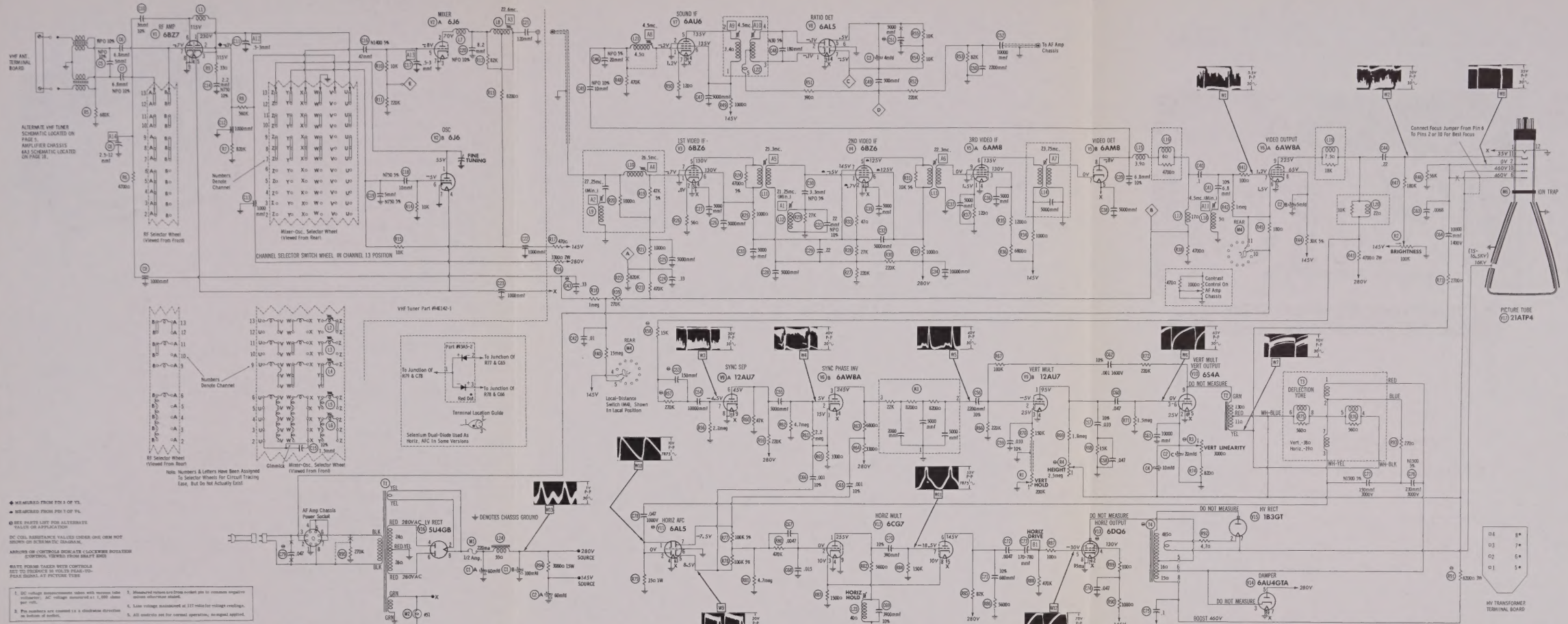
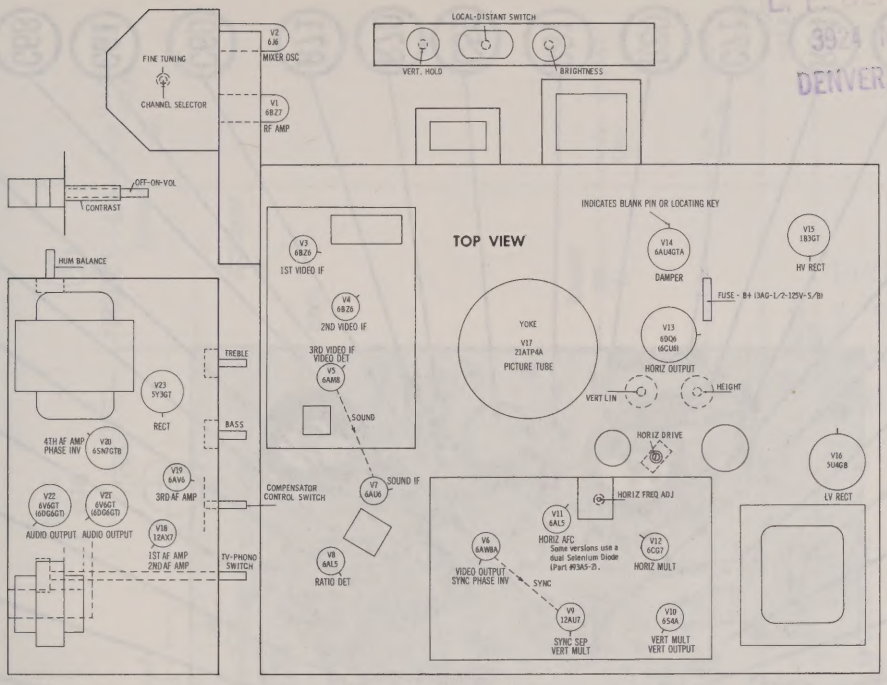


ADMIRAL MODELS HL323A6, B, HL323A7, 8, 9 (Ch. 23HFI, B, Amp. Ch. 6A3)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TUBE PLACEMENT CHART



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TUBE FAILURE CHECK CHART

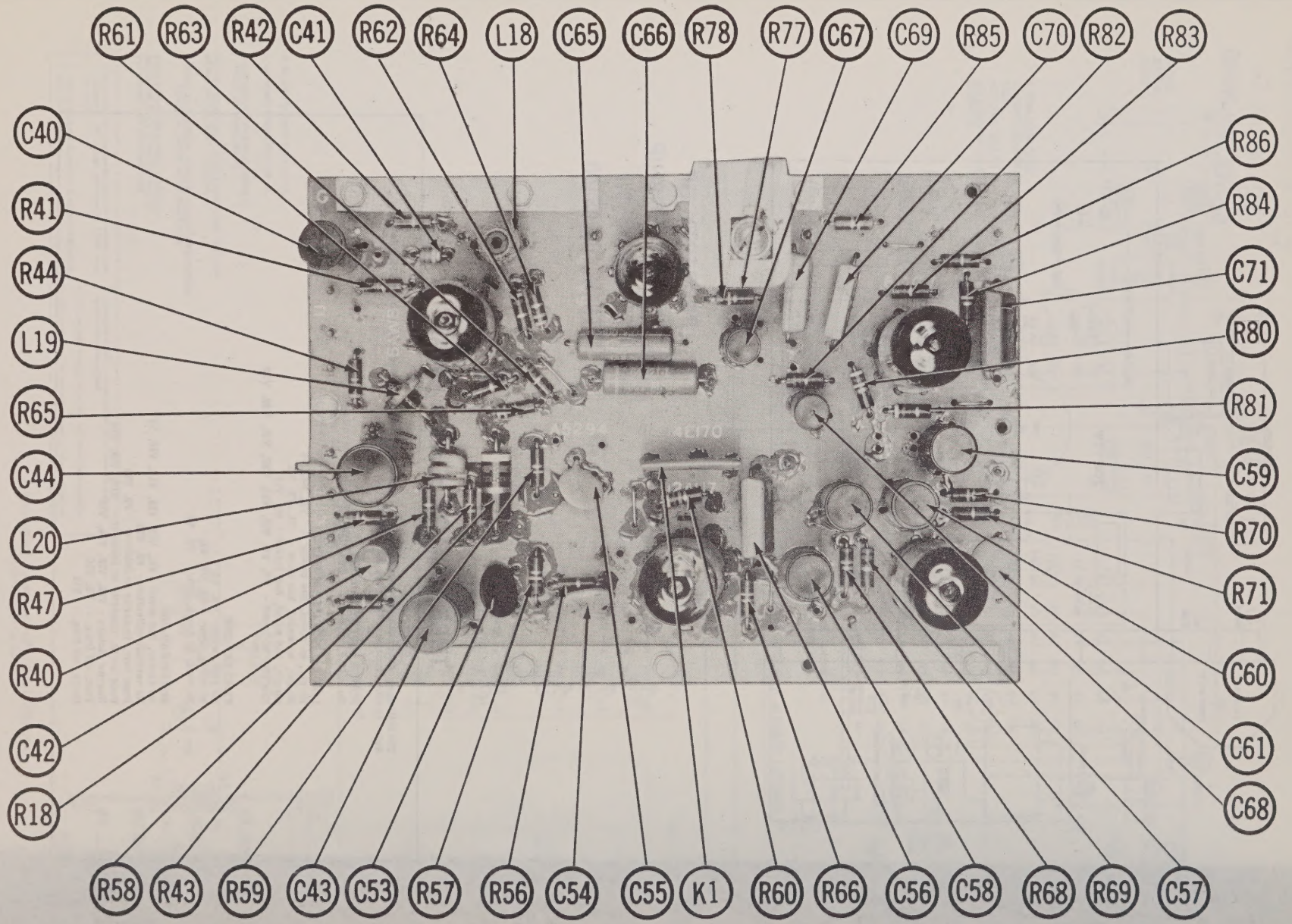
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M1), V16**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V17**
Has pic, no sound - **V7, V8, V18, V19, V20, V21, V22, V23**

SYNC FAILURE
No vert. sync - **V9, V6**
No horiz. sync - **V9, V6, V11**
No vert. or horiz. sync - **V9, V6**

SWEEP FAILURE
No raster, has sound - **V11, V12, V13, V14, V15, V17**
No vertical deflection - **V9, V10**
Poor vert. linearity or foldover - **V9, V10**
Poor horiz. linearity or foldover - **V12, V13, V14**
Narrow picture - **V12, V13, V14, V16**
Vert. off freq. - **V9, V10**
Horiz. off freq. - **V12**



VIDEO, SYNC AND SWEEP—PRINTED BOARD

PROPERTY OF
T. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Remove the mixer-osc. tube (V2) from its socket and replace with a 6J6 having pin 1 removed.
Disconnect antenna leads and connect a short jumper across the antenna terminals.
Turn the contrast control fully counter clockwise.
Connect the negative lead of a 3 volt bias supply to point Ⓐ . Positive to chassis.
For steps 1 and 2 use a strong signal from the generator but for all other steps, use only enough generator output to provide usable indication on VTVM. Use lowest scale on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over dummy mixer-osc. tube (V2). Low side to chassis.	21.25MC (Unmod)	Any non-interfering channel	DC probe thru decoupling network (Fig. 1) to point Ⓑ . Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	27.25MC	"	"	A2	"
3.	"	"	22.6MC	"	"	A3	Adjust for maximum deflection.
4.	"	"	26.25MC	"	"	A4	"
5.	"	"	25.3MC	"	"	A5	"
6.	"	"	22.3MC	"	"	A6	"
7.	"	"	23.75MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to ungrounded tube shield floating over dummy mixer-osc. tube (V2) . Low side to chassis.	23.0MC (10MC Swp)	21.25MC 22.0MC 23.0MC 25.0MC 25.75MC	Any non-interfering channel	Vert. Amp. thru decoupling network (Fig. 1) to point Ⓑ . Low side to chassis.		Check for response similar to Fig. 2. If necessary, retouch A1 thru A7 to obtain desired response. Adjust A4 and A5 for position of 25.75MC marker and amplitude of response curve on high frequency side. Adjust A3 and A6 for position of 22MC and 23MC markers and amplitude of response curve on low frequency side.

SOUND IF ALIGNMENT

Disconnect antenna and connect a short jumper across antenna terminals.
Set contrast control fully counter clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.01MFD	High side to pin 8 (plate) of 6AM8 (V5). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓒ . Common to chassis.	A8, A9	Use only enough generator output to provide usable indication on VTVM.
10.	"	"	"	"	DC probe to point Ⓓ . Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	.01MFD	High side to pin 8 (plate) of 6AM8 (V5). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓒ . Common to chassis.	A11	Connect a very short jumper across L16. Use lowest scale on VTVM. Adjust for MINIMUM deflection.

4.5MC TRAP ALIGNMENT USING ON THE AIR SIGNAL

Tune in a strong station and adjust the fine tuning until a beat pattern appears in the picture. Adjust A11 for MINIMUM beat pattern while observing the picture.

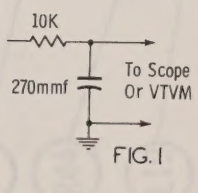


FIG. 1

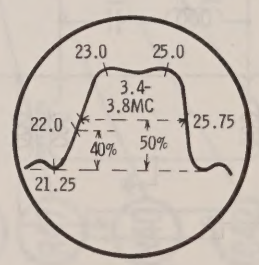


FIG. 2

ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT

Connect bias as under "Video IF Alignment".
Allow a 20 minute warm-up period for the receiver and test equipment.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (E). Low side to chassis.	A12, A13	Adjust for response curve similar to Fig. 3 with markers above 90%.
13.	"	"	85MC	83.25MC 87.75MC	6	"	A14	Adjust for response curve similar to Fig. 3. Adjust for maximum amplitude and flat-topped appearance with markers properly positioned.
14.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 3. If markers fall below 70% on any high band channel, make compromise adjustment of A12 and A10 with channel switch set to that channel. If markers fall below 70% on any low band channel, make compromise adjustment of A14 with channel selector switch set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

OSCILLATOR ALIGNMENT FOR TUNER #94D110-2

Connect bias as under "Video IF Alignment".
Allow a 20 minute warm-up period for the receiver and test equipment.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point (E). Low side to chassis.	A15	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A16	
			201MC	199.25MC 203.75MC	11		A17	
			195MC	193.25MC 197.75MC	10		A18	
			189MC	187.25MC 191.75MC	9		A19	
			183MC	181.25MC 185.75MC	8		A20	
			177MC	175.25MC 179.75MC	7		A21	
			85MC	83.25MC 87.75MC	6		A22	
			79MC	77.25MC 81.75MC	5		A23	
			69MC	67.25MC 71.75MC	4		A24	
			63MC	61.25MC 65.75MC	3		A23	
			57MC	55.25MC 59.75MC	2		A26	

OSCILLATOR ALIGNMENT FOR TUNER #94E142-1

Turn the set on and allow 15 to 20 minute warm-up.
Set channel selector to the lowest channel operating in the area.
Set the fine tuning control to the center of its range.
Set other controls for normal picture and sound.
Remove channel selector, fine tuning knobs and gold retainer disk, under the knobs, if used.
Using a 1/8" blade, non-metallic tool carefully adjust the channel slug for best picture and sound. (NOTE: This may not be the point at which the sound is loudest). If two slugs are visible at the front of the tuner, adjust the top one. Repeat this procedure for the remaining stations, adjusting them in order of the channel number from the lowest to the highest.

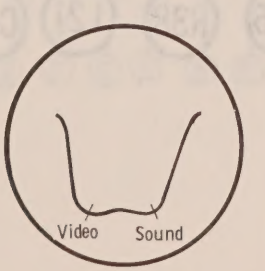


FIG. 3

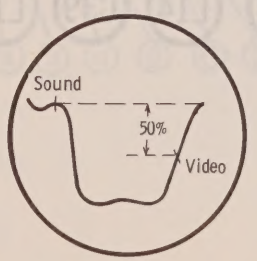
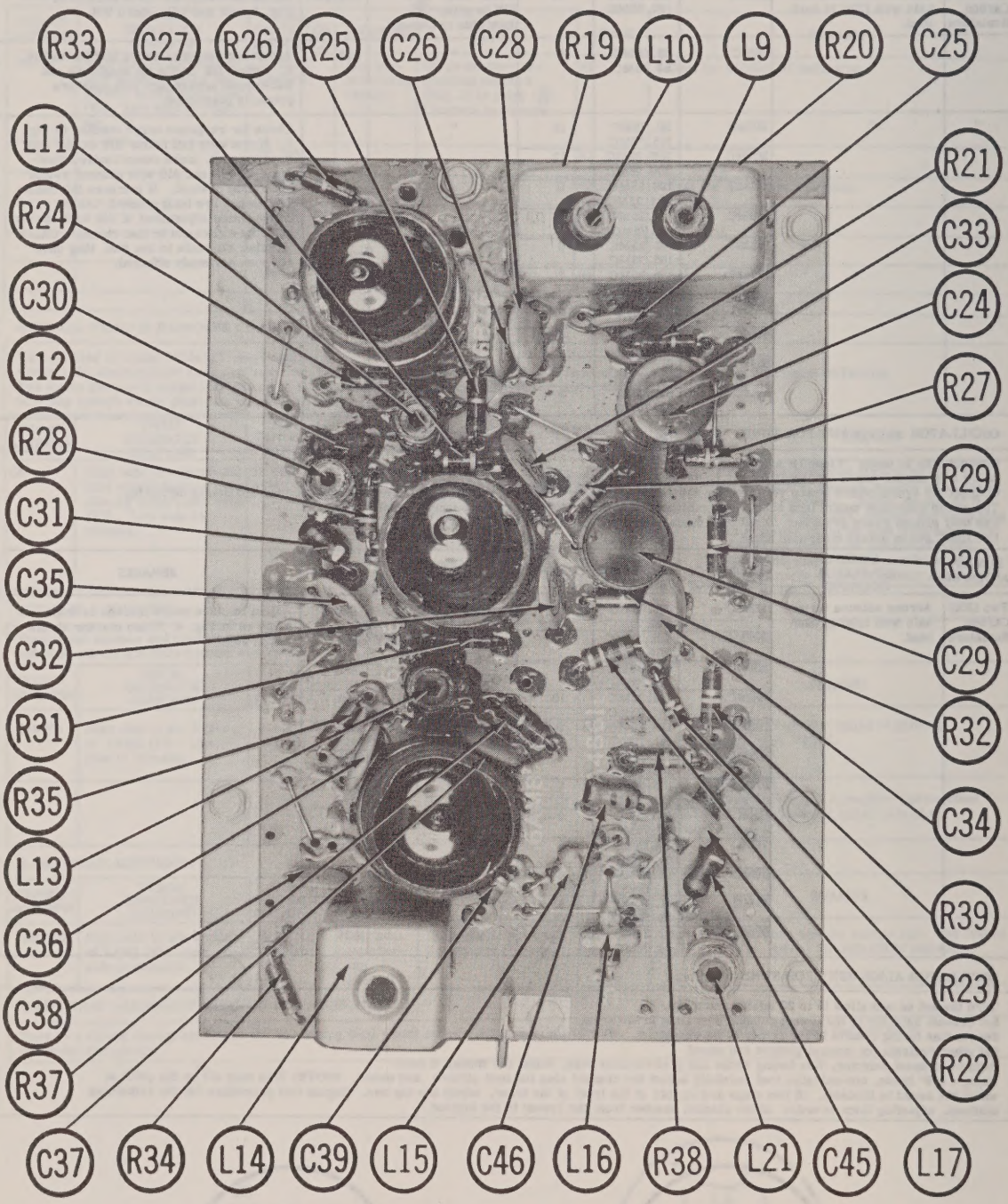
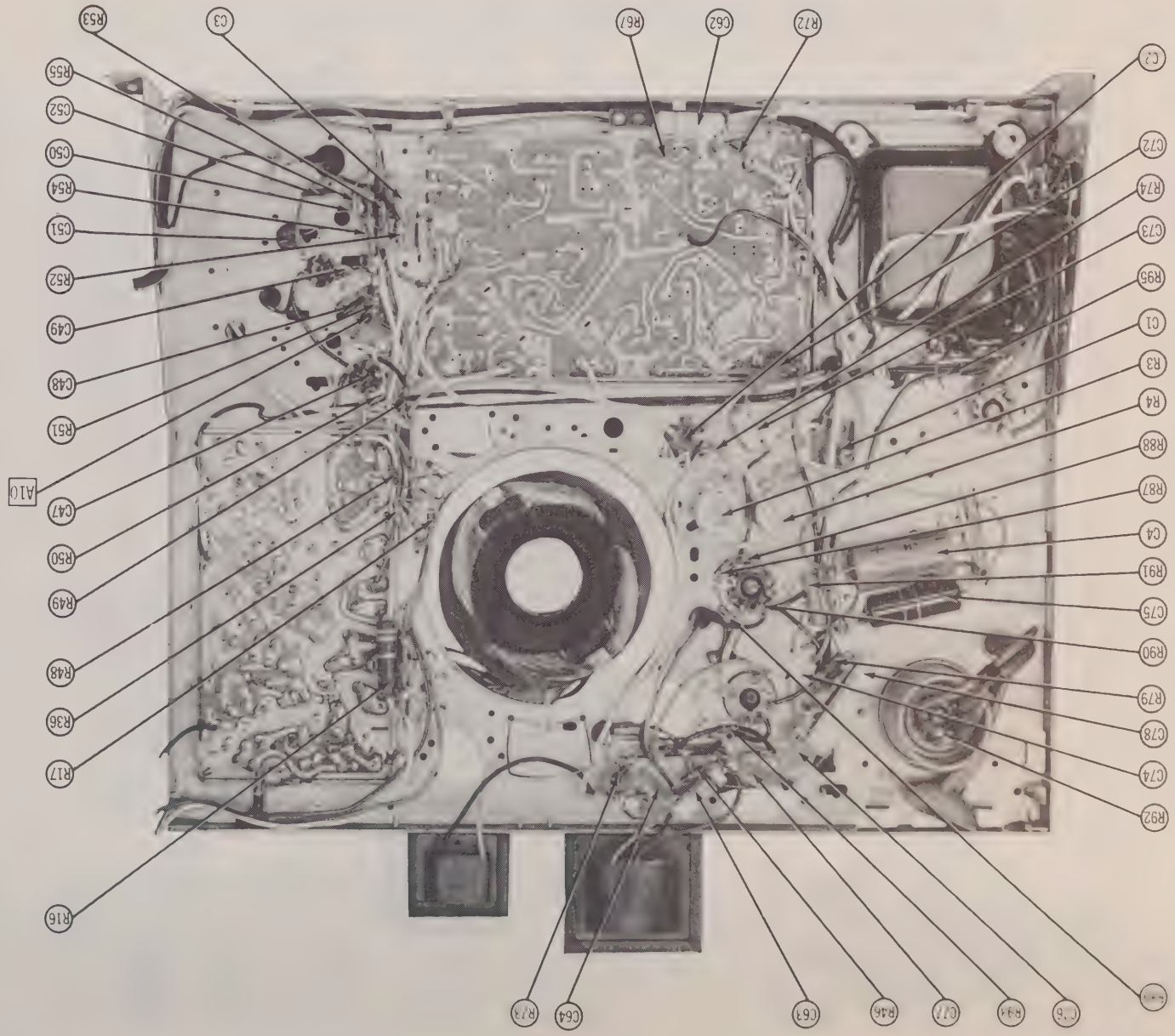


FIG. 4



VIDEO IF PRINTED BOARD

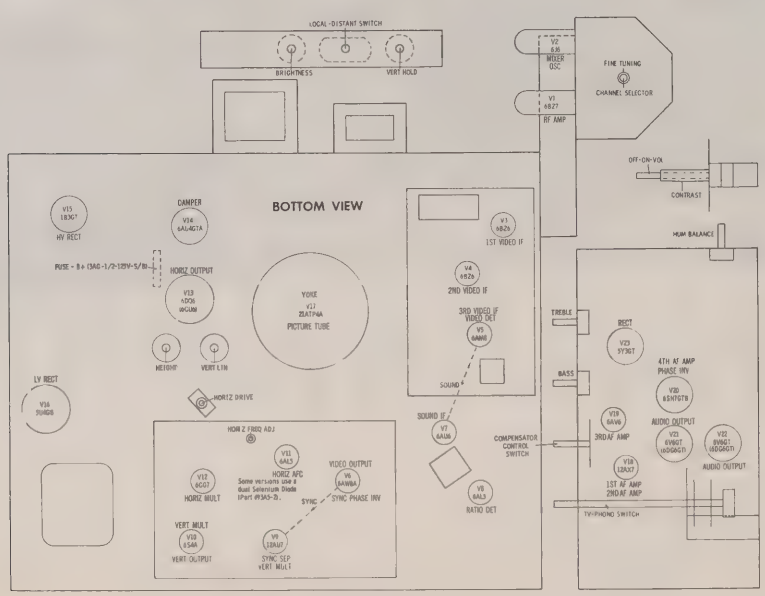
CHASSIS BOTTOM VIEW



RESISTANCE MEASUREMENTS

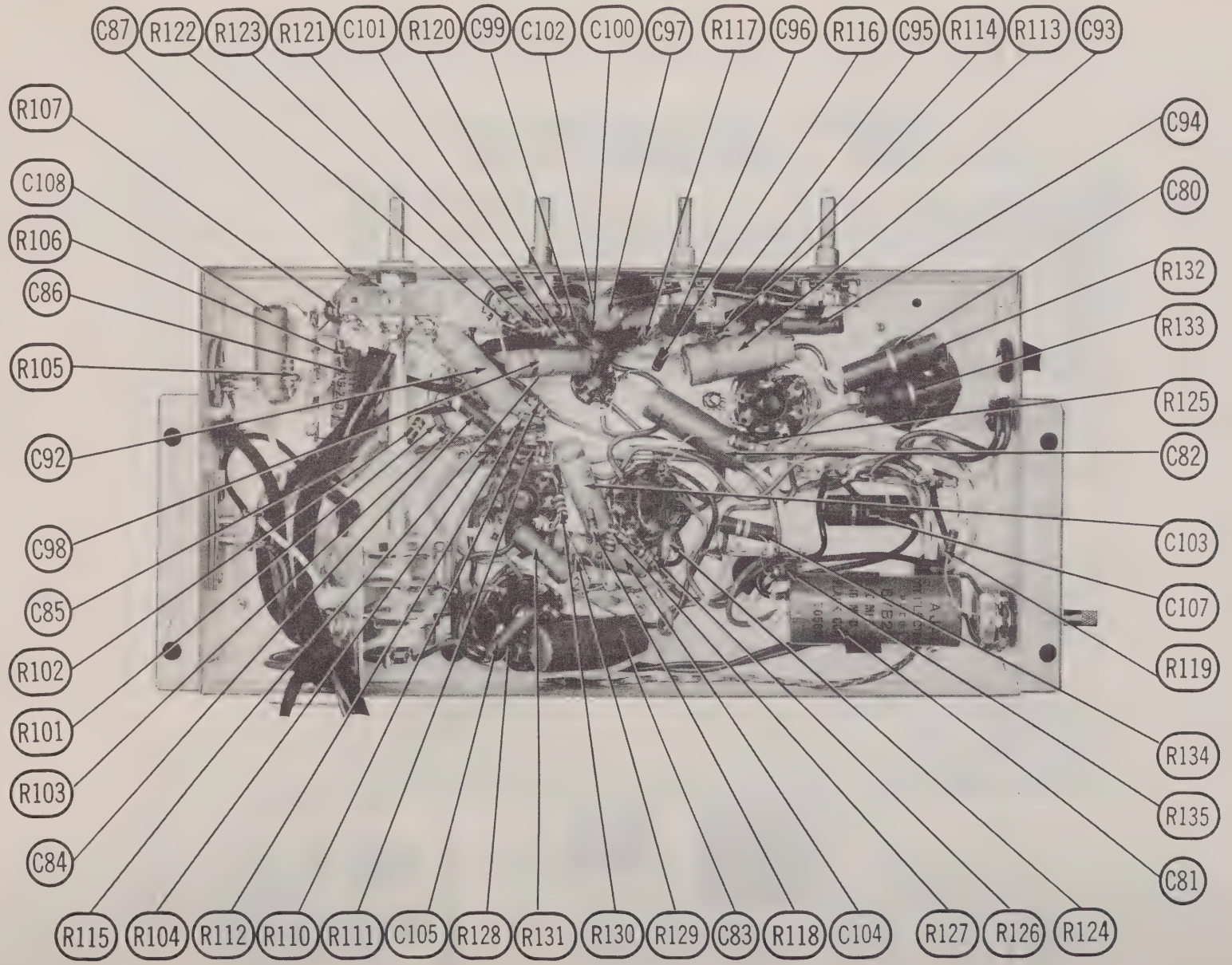
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ7	† 3300Ω	320K	INF	0Ω	.1Ω	INF	1.3Meg	0Ω	0Ω
V2	6J6	† 13K	† 11K	0Ω	.1Ω	230K	10K	0Ω		
V3	6BZ6	270K	56Ω	0Ω	.1Ω	▲ 1000Ω	▲ 1000Ω	0Ω		
V4	6BZ6	▲ 27K	▲ 47Ω	.1Ω	0Ω	† 1000Ω	† 1000Ω	† 140K		
V5	6AM8	120Ω	.3Ω	† 11K	0Ω	.1Ω	† 4000Ω	.2Ω	4700Ω	0Ω
V6	6AW8A	3300Ω	1.4Meg	† 10K	.1Ω	0Ω	• 300Ω	1Meg	† 33K	† 4700Ω
V7	6AU6	470K	0Ω	0Ω	.1Ω	† 4000Ω	† 4000Ω	120Ω		
V8	6AL5	300K	300K	0Ω	.1Ω	10K	0Ω	10K		
V9	12AU7	• ‡ 3.2Meg	220K	• 190K	0Ω	0Ω	† 60K	2.2Meg	0Ω	.1Ω
V10	6S4A	NC	• 1700Ω	1.5Meg	0Ω	.1Ω	1.5Meg	NC	NC	‡ 9500Ω
V11	6AL5	15Ω	15Ω	.1Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V12	6CG7	† 5600Ω	5.2Meg	1500Ω	0Ω	.1Ω	† 82K	150K	1500Ω	0Ω
V13	6DQ6	TP	.1Ω	TP	† 4000Ω	470K	TP	0Ω	0Ω	TOP CAP ‡ 16Ω
V14	6AU4GTA	NC	NC	¶	NC	† 0Ω	NC	.1Ω	0Ω	
V15	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡ 500Ω
V16	5U4GB	NC	¶	NC	24Ω	NC	26Ω	NC	¶	
V17	21ATP4A	.1Ω	56K	PIN 6 ‡ 8200Ω	PIN 10 ‡ 8200Ω	PIN 11 • 200K	PIN 12 0Ω			
V18	12AX7	†† 130K	1Meg	12K	270Ω	270Ω	†† 2200Ω	490K	22K	270Ω
V19	6AV6	• 110K	1000Ω	270Ω	270Ω	0Ω	0Ω	†† 240K		
V20	6SN7GTB	†† 350K	†† 50K	47K	1Meg	†† 350K	4700Ω	270Ω	270Ω	
V21	6V6GT	0Ω	270Ω	†† 70Ω	†† 100Ω	470K	NC	270Ω	270Ω	
V22	6V6GT	0Ω	270Ω	†† 73Ω	†† 100Ω	470K	TP	270Ω	270Ω	
V23	5Y3GT	NC	¶	NC	62Ω	NC	68Ω	NC	¶	

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
▲ MEASURED FROM PIN 7 OF V4. ‡ MEASURED FROM PIN 3 OF V14.
† MEASURED FROM 280V SOURCE. TP TIE POINT.
†† MEASURED FROM 340V SOURCE. NC NO CONNECTION.



TUBE PLACEMENT CHART

CHASSIS TOP VIEW



AMP CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BZ7	
V2	Mixer-Osc.	6J6	
V3	1st. Video IF Amp.	6BZ6	
V4	2nd. Video IF Amp.	6BZ6	
V5	3rd. Video IF Amp. - Video Detector	6AM8	
V6	Video Output-Sync Phase Inverter	6AW8A	
V7	Sound IF Amp.	6AU6	

ITEM No.	USE	TYPE	NOTES
V8	Ratio Detector	6AL5	
V9	Sync Sep. -Vert. Mult.	12AU7	
V10	Vert. Mult. -Vert. Output	6S4A	
V11	Horiz. AFC	6AL5	Note 1
V12	Horiz. Mult.	6CG7	
V13	Horiz. Output	6DQ6	Note 2
V14	Damper	6AU4GTA	
V15	HV Rectifier	1B3GT	
V16	LV Rectifier	5U4GB	

Note 1. Some versions may use a dual selenium diode(part #93A5-2) in this application.
Note 2. A 6CU6 may be used in some versions.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA			NOTES
	ADMIRAL PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V17	21ATP4	21ATP4A/ 21ATP4 ①	21ATP4/ 21ATP4A② 21ATP4A②	① Aluminized ②Silver screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲60	350	67D15-110	AFH3-29-25	C0234	FP330.9		Q-025	TVL-2639
B	▲100	350						MT-4540	
C2A	■60	350	67D15-141					T-755	R2513 *
B	▲5	350						MT-4550	
C	20	50							
C3	4	50	67A4-9	PRS150V4	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1402
C4	10	500	67A4-34	PRS500V10	BR1250	TC82	TD-10-500	MT-5010	TVA-1963

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	5		65D10-108	NPO-SI 5		C10V5C	TCO-5	ZT-555	5TCCB-V5	NPO 10%
C6	6.8		65D10-26	NPO-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	NPO 10%
C7	6.8		65D10-26	NPO-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	NPO 10%
C8	2.5-12		66A38-5							
C9	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C10	3		65B28-030	NPO-SI 3		C10V3C	TCO-3	ZT-553		10%
C11	.5-3		66A38-6		829-3		3115-D	CT565A		
C12	1000		65B26-6	EF-001	MFT-1000				503C-D1	
C13	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C14	2.2		65D10-27							N750 10%
C15	1.5		65B28-015	NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	5TCCB-V15	10%
C16	47		65D10-73							N1400 5%
C17	.5-3		66A38-6		829-3		3115-D	CT565A		
C18	10		65D10-50	N750-SI 10	TCN-10	C10Q1U	TC7-10	NT-541	5TCU-Q1	N750 5%
C19	5		65D10-22	N750-SI 5	TC7-5	C10V5U	TC7-5			N750 5%
C20	8.2		65D10-131	NPO-SI 8.2		C10V82C	TCO-8.2			NPO 10%
C21	120		65D10-90	BPD-00012	DD-121	L10T12	ED-120	UC-5312	5GA-T12	
C22	1000		65B26-5	EF-001	MFT-1000				503C-D1	
C23	1000		65B28-5	EF-001	MFT-1000				503C-D1	
C24	.33	200	64B16-50			BC2P33J			2SE-P33	
C25	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C26	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C27	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C28	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C29	.22	200	64B16-51			BC2P22J		ACE6022	2SE-P22	
C30	3.3		65D6-89	NPO-SI 3.3	TCZ-3R3	C10V33C	TCO-3.3	ZT-5533	5TCCB-V33	NPO 5%
C31	22		65D6-113	NPO-SI 22	TCZ-22	C10Q22C	TCO-22		5TCC-Q22	NPO 10%
C32	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C33	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C34	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C35	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C36	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C37	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C38	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C39	6.8		65B28-068	NPO-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	10%
C40	.1	200	64B16-53	P288N-1	DF-104	BC2P1J		ACE401	2SE-P10	
C41	6.8		65B28-068	NPO-SI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	10%
C42	.01	400	64B16-59			BC6S1J		ACE611	4SE-S10	
C43	.33	200	64B16-50			BC2P33J			2SE-P33	①
C44	.22	400	64B16-28			BC6P22J		ACE6022	4SE-P22	
C45	10		65D6-44	NPO-SI 10	TCZ-10	C10Q1C	TCO-10	ZT-541	5TCC-Q1	NPO 10%
C46	20		65D6-51	NPO-SI 20	TCZ-20	C10Q2C	TCO-20	ZT-542	5TCC-Q2	NPO 5%
C47	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C48	180		65D10-52							N30 5%
C49	500			BPD-0005	DD-501	L10T5	ED-500	UC-535	5GA-T5	
C50	2200			BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C51	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	③
C52	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C53	150			BPD-00015	DD-151	L10T15	ED-150	UC-5315	5GA-T15	②
C54	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C55	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C56	2200			1464-0022		BYA10D22			MS-222	10%
C57	.033	600	64B15-33							10%
C58	.047	600	64B16-32			BC6S47J		ACE6147	6SE-S33	
C59	.033	400								10%
C60	.047	400	64B16-9			BC6S47J		ACE6147	4SE-S47	
C61	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C62	.001	1600								10%
C63	.0068	600		P688N-0068	D6-682	CUB6D68	GP-6800	GEM-6268	6TM-D68	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No	RATING CAP	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL-DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C54	10000	1400		DAC-37	DUK6-103	HVK1681		GEM-1681	HVL-5H9	
C55	.001	400								10%
C56	.001	400								10%
C57	.0047	600			BU-SDM7J			AUE6247	6SF-C347	
C58	.025	200			BU-2S1J				2S-P-215	
C59	3900			1454-3039	1N5039				MS-539	10%
C60	1500			1454-3003v	5N5039				MS-539	10%
C71	680			1454-00068	3N5768				MS-368	10%
C72	.0047	600		P668N-0047	CUD6D47	GP-4700		GEM-6247	6TM-D47	
C73	170-730		66A30-3							
C74	.047	600		P668N-0047	DF-503	CUB6647		GEM-6147	6TM-647	
C75	.1	600		P668N-1	D3-104	CUB6P1		GEM-601	6TM-P1	
C76	320	3000	65D10-69							N1500 5%
C77	150	3000	65D10-68							N1500 5%
C78	.047	1000		P1068N-047		CUB10647		GEM-10147	10TM-647	
C79	.047	600		P668N-047	DF-503	CUB6647		GEM-6147	6TM-647	③

1 Some versions may use a .22MFD ② 300V molded upright in this application (Part #9ABI8-51)
2 In chassis 23HF1 this is part of a component combination (Part #63C6-4)
3 Not used in chassis 23HF1

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No	CENTRALAB PART No	CAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R1A	200K	½	75D13-65	B-68	A47-200K-S	QI-129	U43	Vert. Hold
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	100K	½	75D83-83	B-60	A47-100E-S	QI-138	U46	Brightness
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	3000Ω	½	75D80-7	AB-8	A47-3000-S	QI-113	U8	Vert. Lin.
B	Shaft			AK-1	FKS-1/3	RQ	Not Req.	
A	3000Ω	½	75C30-7	AB-8	A47-3000-S	QI-113	U8	Vert. Lin. - Note 1
B	Shaft			AK-1	FKS-1/3	RQ	Not Req.	
R4A	2.5Meg	½	75D80-1	BX-83	A47-2.5Meg	QI-139	SU-665	Height
					-S			
B	Shaft			Not Req.	FKS-1 2	RQ	Not Req.	
	2.5Meg	½	75C30-1	BX-83	A47-2.5Meg	QI-139	SU-665	Height - Note 1
					-S			
B	Shaft			Not Req.	FKS-1 2	RQ	Not Req.	

Note 1. Alternate part number may be used in some versions

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING OHMS	RATING WATT	ADMIRAL PART No	NOTES
R5	680K			
R6	4700Ω			
R7	820K			
R8	560K			
R9	33Ω			
R10	10K			
R11	220K			
R12	82K			
R13	8200Ω			
R14	10K			
R15	10K	2		
R16	3300Ω	2		
R17	470Ω			
R18	1Meg			
R19	47K 5%			
R20	1000Ω			
R21	1000Ω			
R22	820K			
R23	470K			
R24	4700Ω 5%			
R25	1000Ω			
R26	56Ω			
R27	220K			
R28	27K			
R29	27K			
R30	220K			
R31	10K 5%			
R32	1000Ω			
R33	47Ω			
R34	1900Ω			
R35	1200Ω			
R36	6800Ω			
R37	120Ω			
R38	4700Ω			
R39	270K			
R40	15Meg			
R41	100Ω			
R42	1Meg			
R43	4700Ω	2		
R44	30K 5%			
R45	180Ω			
R46	56K			
R47	180K			
R48	470K			
R49	1000Ω			
R50	120Ω			

ITEM No	RATING OHMS	RATING WATT	ADMIRAL PART No	NOTES
R51	390Ω			
R52	220K			
R53	820K			
R54	10K			
R55	10K			
R56	1.5Meg			
R57	270K			Note 1
R58	18K			Note 1
R59	220K			
R60	47K			
R61	2.2Meg			
R62	4.7Meg			
R63	6800Ω			
R64	3300Ω			
R65	5300Ω			
R66	220K			
R67	100K			
R68	15K			
R69	1.8Meg			
R70	150K			
R71	1.5Meg			
R72	220K			
R73	2700Ω			
R74	820Ω			
R75	560Ω			
R76	560Ω			
R77	100K 5%			
R78	100K 5%			
R79	100Ω	1		
R80	470K			
R81	4.7Meg			
R82	560Ω			
R83	1500Ω			
R84	150K			
R85	82K			
R86	5600Ω			
R87	100Ω			
R88	470K			
R89	100Ω			
R90	1000Ω			
R91	8200Ω	3		Note 2
R92	4.7Ω			
R93	270Ω			
R94	3000Ω	15	61B3-14	
R95	270K			

Note 1. In chassis 23HF1 this is a part of a component combination (Part #63C6-4).
Note 2. Some versions may use two 16K 2W in parallel in this application.

TRANSFORMER (POWER)

ITEM No	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	ADMIRAL PART No	REPLACEMENT DATA Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	117v a 1.4A	580VCT @ 220A	5V @ 3A	6.3V @ 9.5A	80C35-7	P9739 1 2 ⑤	P-3055 ⑤	P-8167 ③ ⑤	26R90 ③	R-65BC

1 Parallel and phase 6.3 filament winding.
2 Tape 12.5V filament winding
3 Drill new mounting hole(s).
5 Tape 8.3V @ 4.5A filament winding.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA ADMIRAL PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T2	Vert. Output	79B43-4	Z1807 1 2	A-3824	V312	A-8161	26B54	A-10X	
T3A	Yoke-Horiz (28MH)	94D87-13	DF507	MDF-92	Y90F19/43	DY-16A	Y-41 &	X-41 &	
B	(80°)-Vert. (28MH)	3	4	⑤	⑤	①	4	XW2 4	
M5	Rear Cover & Centering Device	94B12-1							
T4	Horiz. Output	79D65-1	FB420 *	HVO-54 *	X129 *	A-8292 *	FLY-77 *	D-49 *	
	Alt. Horiz. Output	79D65-1	FB420 *	HVO-54 *	X129 *	A-8292 *	FLY-77 *	D-49 *	

1 Drill new mounting hole(s).
2 Cut and tape blanking lead.
3 Includes resistors R75 and R76
4 Loosen and rotate core clamp 180 degrees, then connect same as original. Use original horizontal damping network, rear cover and centering device.

* HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TRIPLET CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5	5	5	5	5	4	5
6	2	4	4	6	3	6
8	1	1	1	8	1	2
Special Notes ⑤	5	5	5	5	5	5

⑤ Filament requires two turns.

COILS (RF-IF)

ITEM No.	USE	ADMIRAL PART No.	NOTES
L1	RF Choke	73A3-9	
L2	Osc. Coil	73D85-15	Channel 4
L3	Osc. Coil	73D80-14	Channel 6
L4	Osc. Coil	73D80-6	Channel 9
		-S	

ITEM No.	USE	ADMIRAL PART No.	NOTES
L5	Osc. Coil	73D80-8	Channel 11
L6	Osc. Coil	73D80-5	Channel 13
L7	RF Choke	73D80-16	
L8	Mixer Plate Coil	73A194	

ITEM No.	USE	REPLACEMENT DATA ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L9	27.35MC Trap	73C33-5				
L10	1st Video IF	73C33-6				
L11	2nd. Video IF	73C33-4				
L12	21.25MC Trap	73C33-3				
L13	3rd. Video IF	73C33-2				
L14	4th. Video IF	73C33-1				Includes .005MFD Cap.
L15	RF Choke	73B34-4	19-3038	TV-180	6176	36 Microhenries
L16	Series Peaking Coil	73B5-33	19-3180 *	TV-184 *	6180 *	188 Microhenries, wound on 4700Ω resistor
L17	Shunt Peaking Coil	73B5-20	19-3600	TV-303	6174	0K Microhenries
L18	4.5MC Trap	73C33-1				
L19	Series Peaking Coil	73B5-14	19-3350 a	TV-185 a	6181 a	254 Microhenries, wound on 18K resistor
L20	Shunt Peaking Coil	73A11-1		TV-307 +	6156 +	190 Microhenries, wound on 10K resistor
L21	Sound IF	73C33-1				
L22	Ratio Det.	73C68-2	17-1033	TV-110	1468	

* Parallel with 4700Ω resistor. a Parallel with 18K resistor. + Parallel with 10K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ADMIRAL PART No.	Messner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L23	40Ω		94C17-4		TV-164				

FILTER CHOKE

ITEM No	RATINGS TOTAL CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT 1000 °(A)	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No	Merit PART No.	Stancor PART No	Thordarson PART No	Triad PART No.
L24	220A	56Ω	1.3 HY.	74B18-13	C5037 ①	C-2326 1	26C93	C-24X	

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ADMIRAL PART No	REPLACEMENT DATA	
K1	Vert. Integrator	2000MMF, 5000MMF, 5000MMF 22K, 8200Ω, 8200Ω	63C8-7	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA10 PC104 1S5TM1 1405-01 V-1

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ADMIRAL PART No. FUSE	ADMIRAL PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1/2A 125V S/B			313.500 (2AG 1/2A 125V S/B)	357001	MDL 1/3	4405

MISCELLANEOUS

ITEM No	PART NAME	ADMIRAL PART No.	NOTES
M2	Pilot Lamp		#51
M3	Tuner	94E142-1	VHF - Ch. 23HF1D
	Tuner	94D10-2	VHF - Ch. 23HF1
M4	Switch	78A31-1	Local-Distance Rotary, wafer type
M5	Centering Device	94B12-1	Includes yoke cover
M6	Ion Trap	94A15-4	
	Printed Board	A5294	Video Sync & Sweep
	Printed Board	A4861-4	Video IF

AMP PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1A	1st AF Amp -2nd AF Amp.	12AX7	
V1B	3rd AF Amp -Phase Inv	6AV6	
V2	4th AF Amp -Phase Inv	6BN8/7DB	

ITEM No	USE	TYPE	NOTES
V2I	Audio Output	5V8GT	(5U8GT)
V22	Audio Output	5V8GT	(5U8GT)
V23	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No	AEROVOX PART No	CORNELL DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No
C80A	40	400	67D7-30	AFE4-18-45	D0177	FP378 TC75	TMQ-130	Q-065	TVL-4775
B	40	400							
C	40	400							
C81A	40	300	67B26-5	PR8450V40	CO230	TCD-65 TC63	TDLD-30	T-986	RS812 *
B	10	300		20					
C83	25	15	67A4-30	PR825V25	BBR25-25	TC25	TD-25-25	MT-2325	TVA-1305
C83	50	25	67A4-31	PR825V50	BBR50-25	TC25	TD-50-25	MT-2350	TVA-1306

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	ADMIRAL PART No.	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C84	220			S1 220	D8-221	LT6T22	GP-220	UC-5322	5GA-T22	
C85	.002	600		P668N-002	D6-302	CUB6D3	GP-3300	GEM-6233	6TM-D3	②
C86	.015	200		P288N-015	DD15-153	CUB5S15	ED-015	GEM-6215	4TM-S15	
C87	.015	200		P288N-015	DD15-153	CUB5S15	ED-015	GEM-6215	4TM-S15	
C88	220			S1 220	D8-221	LT6T22	GP-220	UC-5322	5GA-T22	
C89	100			BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C90	5000			BPD-006	DD-502	BYA10D8	ED-005	DC535	5SK-D5	
C91	5000			BPD-006	DD-502	BYA10D8	ED-005	DC535	5SK-D5	
C92	.02	400		P468N-02	DD-303	CUB4S2	ED-02	GEM-412	4TM-S2	
C93	.1	300		P288N-1	DF-104	CUB2P1		GEM-301	2TM-P1	
C94	220			S1 220	D8-221	LT6T22	GP-220	UC-5322	5GA-T22	①
C95	1500			P288N-0015	DD-152	BYA10D15	ED-0015	DC5215	5SK-D15	②
C96	5000			BPD-006	DD-502	BYA10D8	ED-005	DC535	5SK-D5	
C97	.05	400		P468N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C98	.02	400		P468N-02	DD-303	CUB4S2	ED-02	GEM-412	4TM-S2	
C99	220			S1 220	D8-221	LT6T22	GP-220	UC-5322	5GA-T22	
C100	680						ED-680			10%
C101	680						ED-680			10%
C102	680						ED-680			10%
C103	.02	400		P468N-02	DD-303	CUB4S2	ED-02	GEM-412	4TM-S2	
C104	.02	400		P468N-02	DD-303	CUB4S2	ED-02	GEM-412	4TM-S2	
C105	220			S1 220	D8-221	LT6T22	GP-220	UC-5322	5GA-T22	
C106	4.0	10								
C107	.047	400		P488N-047	DF-503	CUB4647		GEM-4147	4TM-647	
C108	.05	600		P668N-05	DF-503	CUB6S3		GEM-613	6TM-S3	

① Some versions use 100MMF in this application.
② Some versions use 6800MMF in this application.
③ Some versions use .0022mfd in this application.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No	CENTRALAB PART No	CAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R98A	1000Ω	½	75B11-32				● UE3758	Contrast Volume Tap ② 200K & 350K
B	500K	½						
C	Switch							
R97A	1Meg	½	73C1-68	B-69	A47-1Meg-S	QI-137	U54	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R98A	1Meg	½	73C1-68	B-69	A47-1Meg-S	QI-137	U54	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R99	6000Ω	½	75D13-81	B-13				Bum Balance

● STA-LOC Equivalent FO13R, OG26S7, RU550T354, RS300, US-41

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING OHMS	RATING WATT	ADMIRAL PART No	NOTES
R100	470Ω			
R101	1Meg			
R102	100K			
R103	22000Ω			
R104	10K 5%			
R105	390K			
R106	220K			
R107	390K			
R108	51K 5%			
R109	51K 5%			
R110	470K			
R111	22K			
R112	470Ω			
R113	47K 5%			
R114	100K		Note 1	
R115	220K			
R116	1000Ω			
R117	47000 5%			

ITEM No	RATING OHMS	RATING WATT	ADMIRAL PART No	NOTES
R118	1Meg			
R119	1.8Meg			
R120	120K			
R121	120K			
R122	82K			
R123	180K			
R124	330K			
R125	470Ω			
R126	47K			
R127	47K			
R128	3900Ω			
R129	470K			
R130	470K			
R131	270Ω	3		
R132	100K	2		
R133	100Ω	2		
R134	22K	1		
R135	10K			

Note 1. Some versions may use a 10K in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T5	117 @ .65A	630VCT @ .082A	5V @ 2A	6.3VCT @ 2.2A	80B48-3	P9310		PC8409	22R04 ①	R-11A

① Use universal mounting brackets.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T6	4800Ω CT	3-4Ω	79C56-4	Z1011	A-2904①	A-3850 ①	22S62	S-55X	① Drill one new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ADMIRAL PART No.	QUAM PART No.	
SP1	12"	PM	3-4Ω	78B112-1 ①	12A31 ①	① Phase
SP2	4"	PM	12Ω	78B128-1 ①	4A1Z12 ①	
SP3	3½"	PM	3-4Ω	78B91-2 ①	3A15TZ3 ①	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	ADMIRAL PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M7	409B20	55T	GD-J	56	PT-1	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

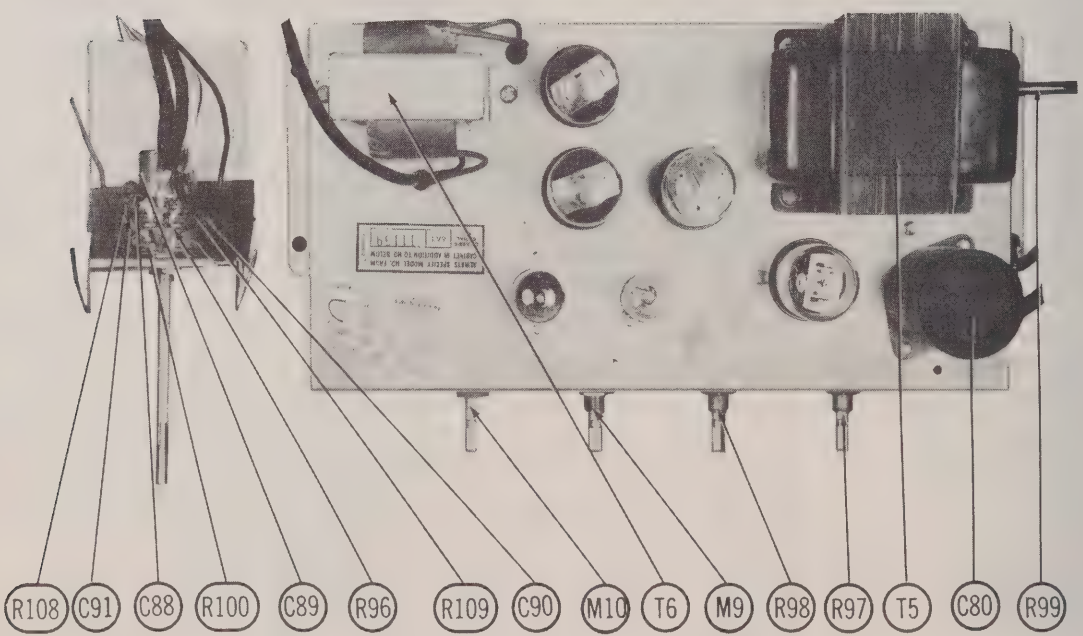
PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

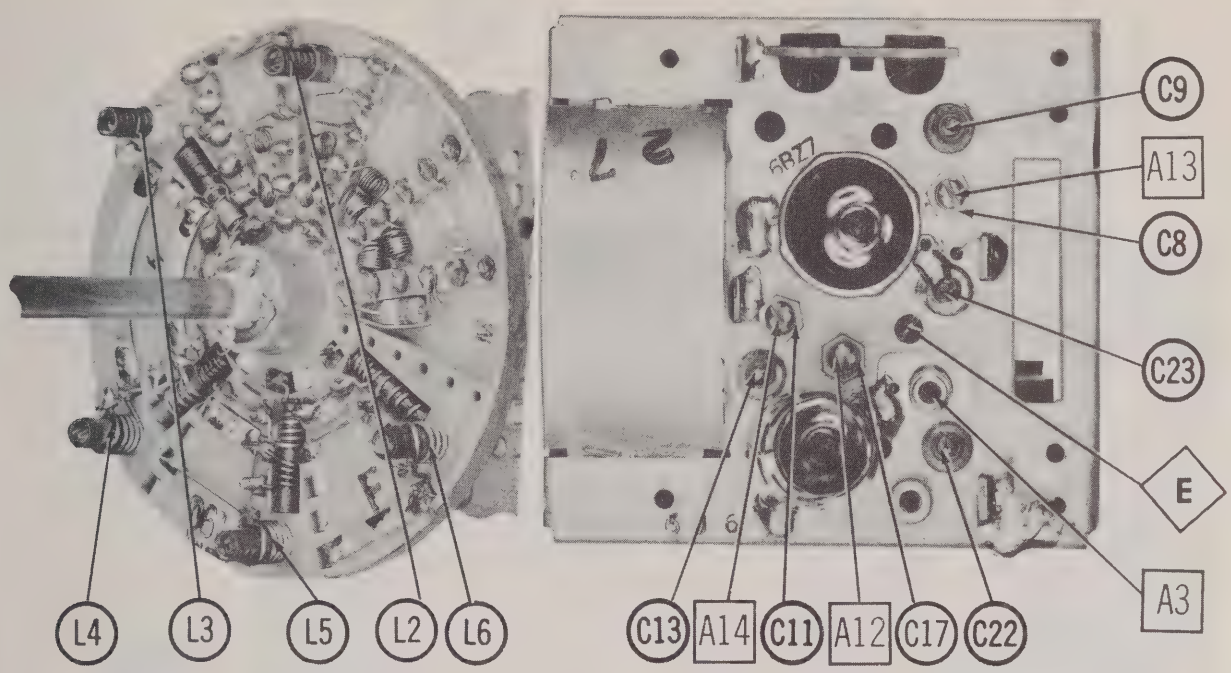
ITEM No.	REPLACEMENT DATA			REMARKS
	ADMIRAL PART No.	JENSEN PART No.	WALCO PART No.	
M8	98B15-43 or 98B15-45	*JP-36 or †JPS-36 or †♦JPS-36SD or ♦JPS-36D	*W-33TPA or †W-33TPS or †♦W-33DS or ♦W-33TPD	* Metal † Jewel ♦ Diamond

MISCELLANEOUS

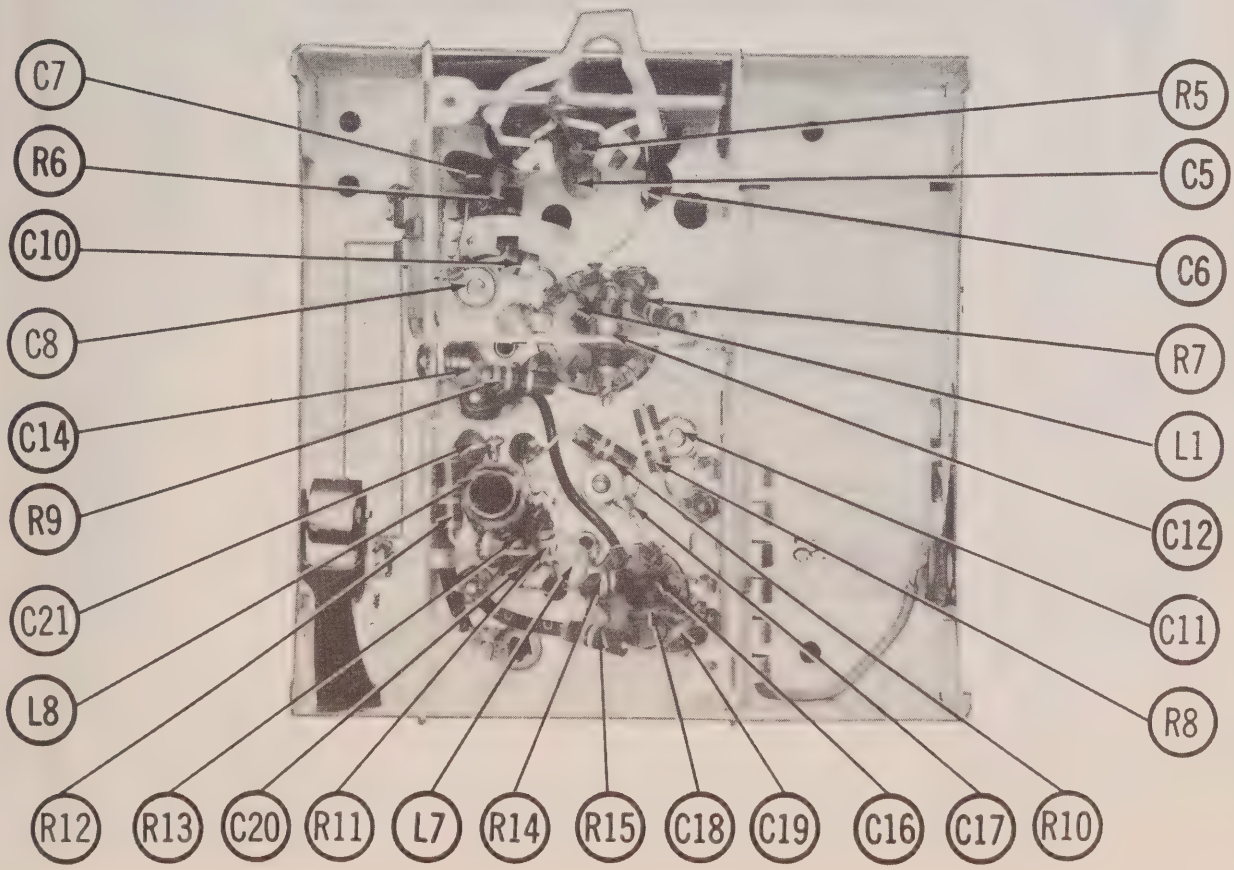
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M9	Switch	77A56-3	Compensator, Rotary, wafer type
M10	Switch	76B36	Function, TV-phono, Rotary, wafer type



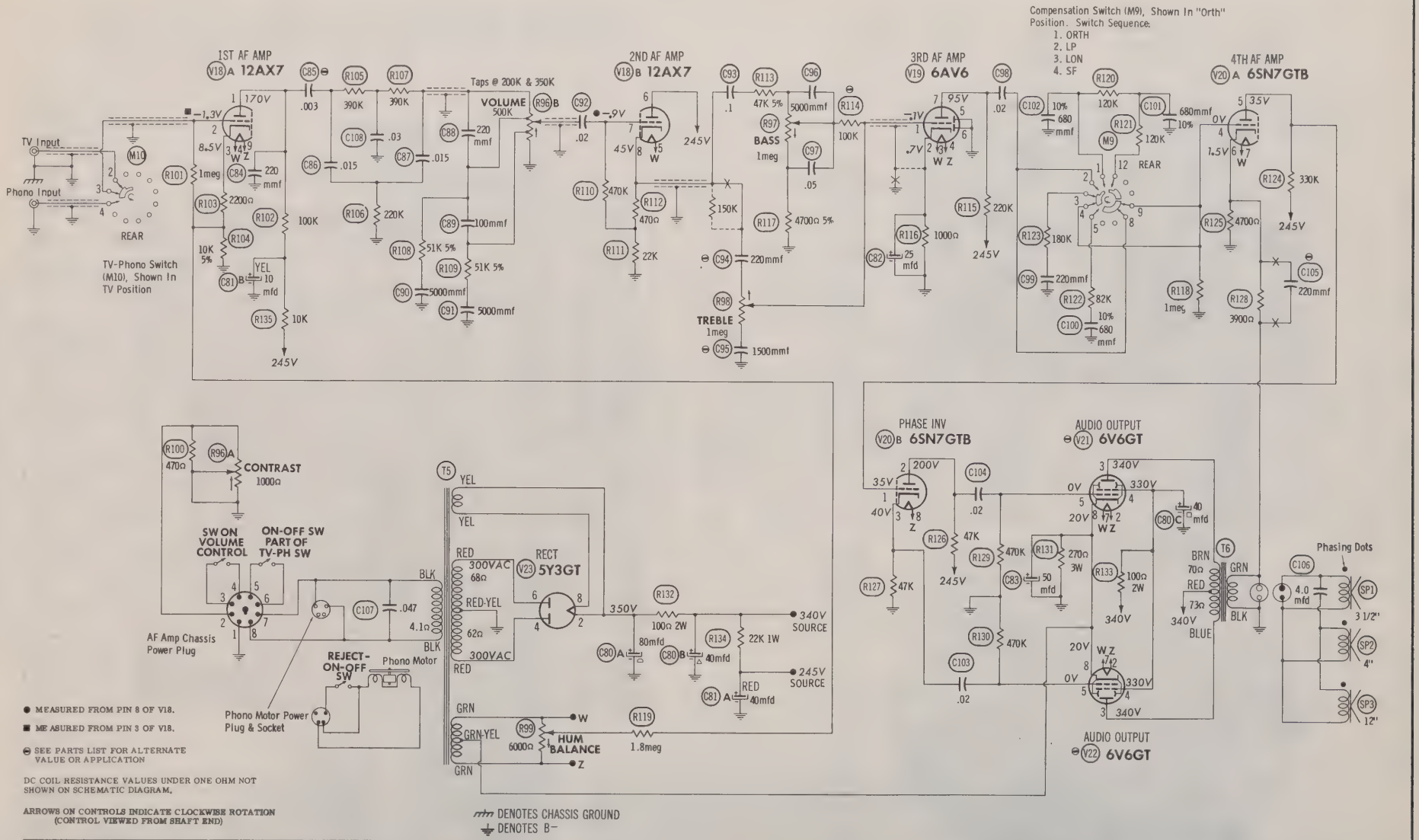
AMP CHASSIS TOP VIEW



RF TUNER



RF TUNER-BOTTOM VIEW



● MEASURED FROM PIN 8 OF V18.

■ MEASURED FROM PIN 3 OF V18.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

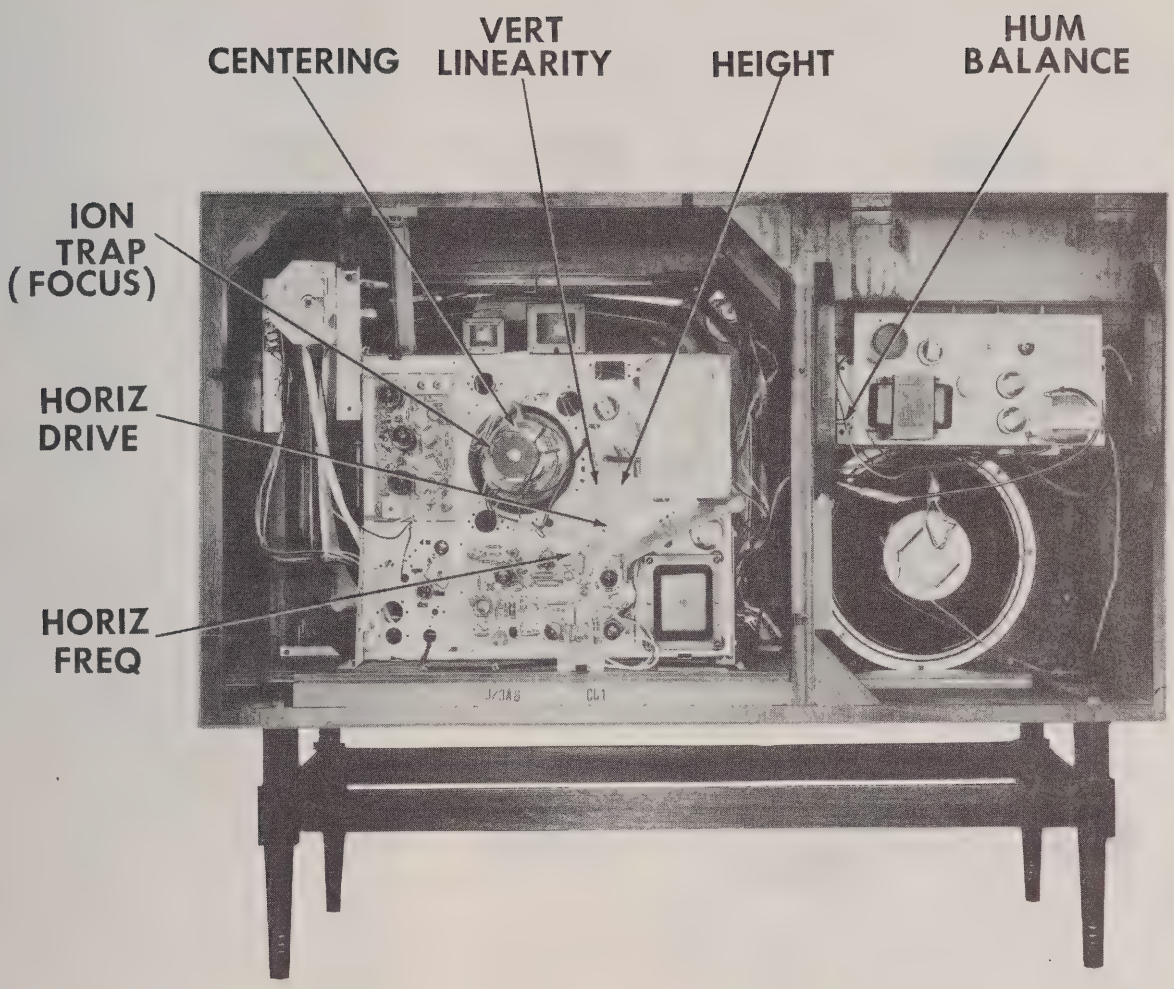
DENOTES CHASSIS GROUND

DENOTES B−

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

AMPLIFIER CHASSIS 6A3



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

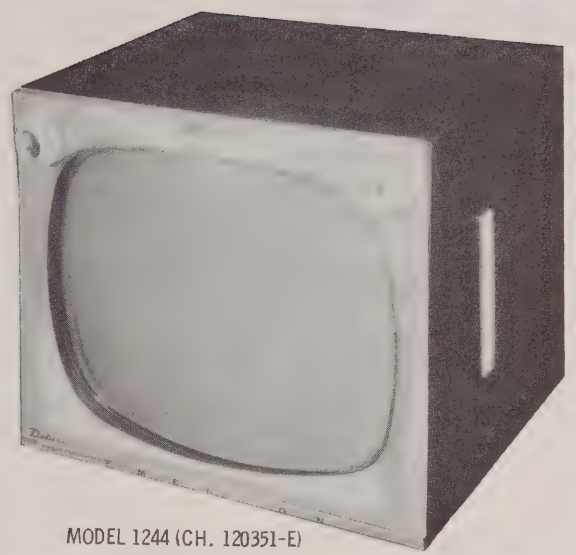
1. Turn the set on and tune in a TV station, preferably with a test pattern.
2. Set the brightness and contrast controls for a normal picture.
3. Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.
4. Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.
5. Turn to an unused channel. If vertical lines appear near the center of the screen, slowly adjust the horizontal drive trimmer (B1) until white lines disappear.
6. If in step 5 the horizontal drive was adjusted, tune in a TV station and repeat steps 3 and 4. Check horizontal sync by switching off channel and back again.

PHOTOFACT* Folder
*TRADE MARK
ELECTRONIC INDUSTRIES ASSOCIATION EIA MEMBER

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from the front.
2. Remove 8 metal screws holding the rear cover. Remove the rear cover.
3. Remove the hex nut holding the volume control.
4. Remove 2 metal screws holding the antenna terminal.
5. Remove 2 metal screws inside the cabinet holding the side control panel.
6. Remove the speaker leads, picture tube socket, ion trap, yoke clamp, width sleeve and HV lead.
7. Remove 2 metal screws from the rear tuner support bracket.
8. Remove 2 metal screws from the upper chassis support brackets.
9. Remove 2 metal screws holding the chassis at the bottom.
10. Remove the chassis and yoke.



MODEL 1244 (CH. 120351-E)

EMERSON MODELS 1212, 1213, 1228, 1229, 1238, 1239, 1244, 1245, 1246, 1247, 1272, 1273, 1274, 1275, 1280, 1281 (Ch. 120351E, 120352G, 120353E, 120354G, 120360E, 120361G)

TRADE NAME	Emerson	MODELS	CHASSIS
		1212, 1228, 1238, 1244, 1246, 1272, 1274	120351-E
		1213, 1229, 1239, 1245, 1247, 1273, 1275	120352-G
		1212, 1228, 1238, 1244, 1246, 1272, 1274	120353-E
		1213, 1229, 1239, 1245, 1247, 1273, 1275	120354-G
		1280	120360-E
		1281	120361-G
MANUFACTURER	Emerson Radio & Phonograph Corp., 14th. & Coles Sts., Jersey City 2, N.J.		
TYPE SET	Television Receiver		
TUBES	Seventeen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 180 Watts, 1.7 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 push-on type knobs. Pull mask out and up to remove. Remove 8 metal screws holding 4 clamps at the sides of glass. Loosen 8 metal screws holding top and bottom glass retaining brackets and slide glass out the side.

SPECIAL ADJUSTMENTS

A. Focus
Adjust the ion trap for the best focus consistent with maximum brightness.

B. Width
The width may be varied by means of a metallic sleeve located between the yoke and the picture tube neck. Adjust sleeve in or out of the yoke for a picture SLIGHTLY larger than necessary to fill the screen.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the discriminator secondary (A10) located on top of chassis.

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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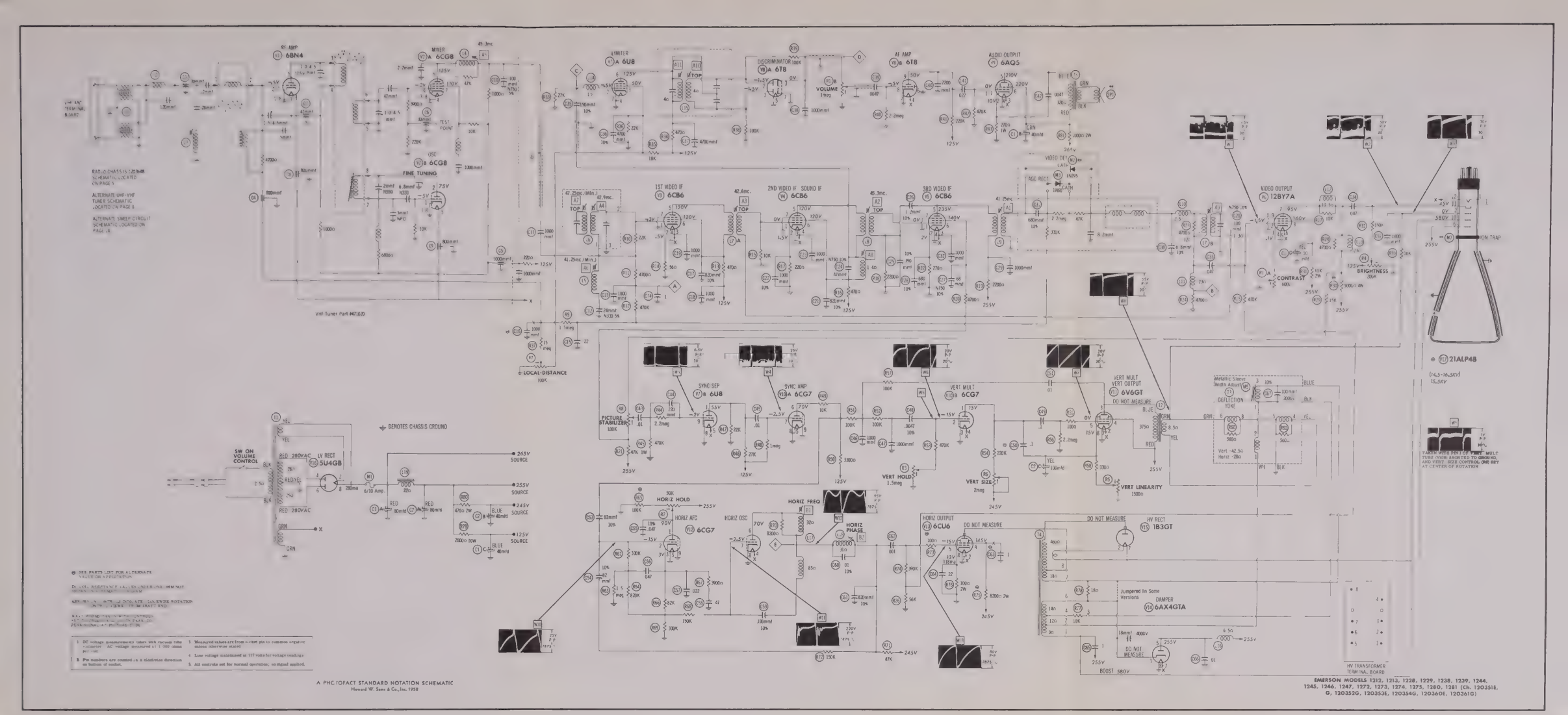
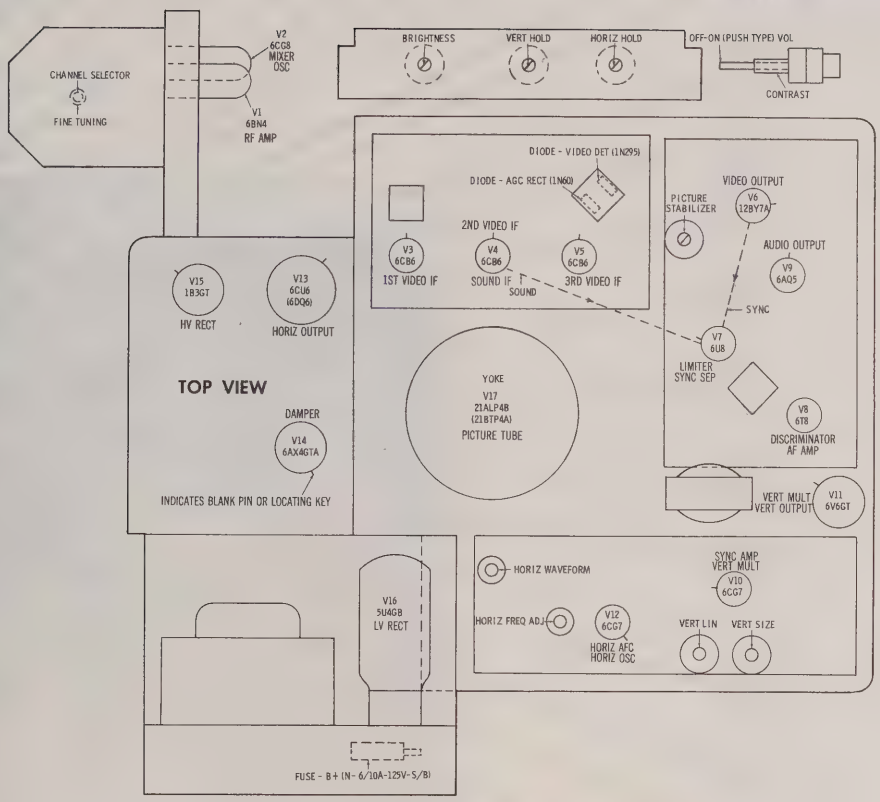


EMERSON MODELS 1212, 1213, 1228, 1229, 1238, 1239, 1244, 1245, 1246, 1247, 1272, 1273, 1274, 1275, 1280, 1281 (Ch. 120351E, G, 120352G, 120353E, 120354G, 120360E, 120361G)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

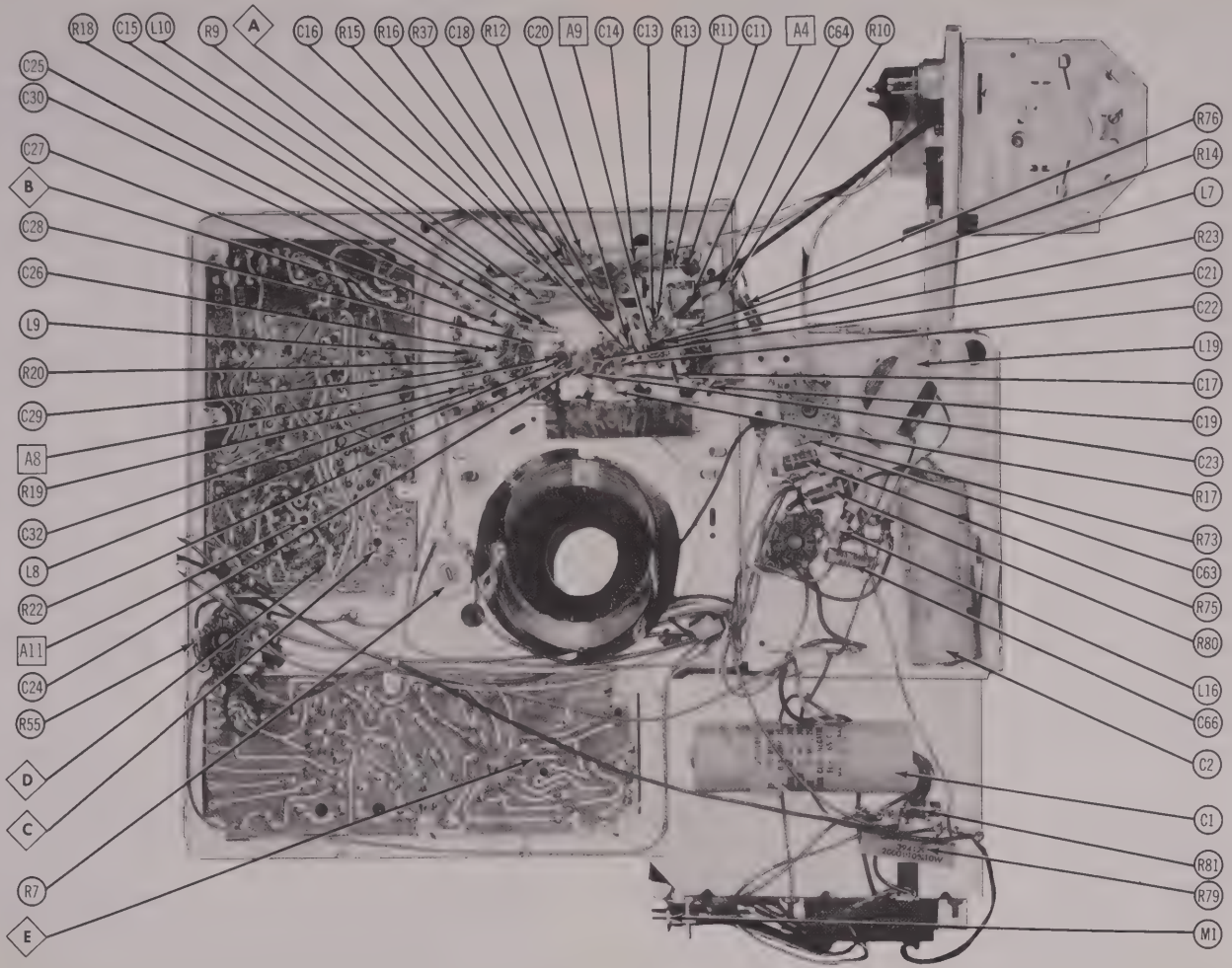
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M1), V16**

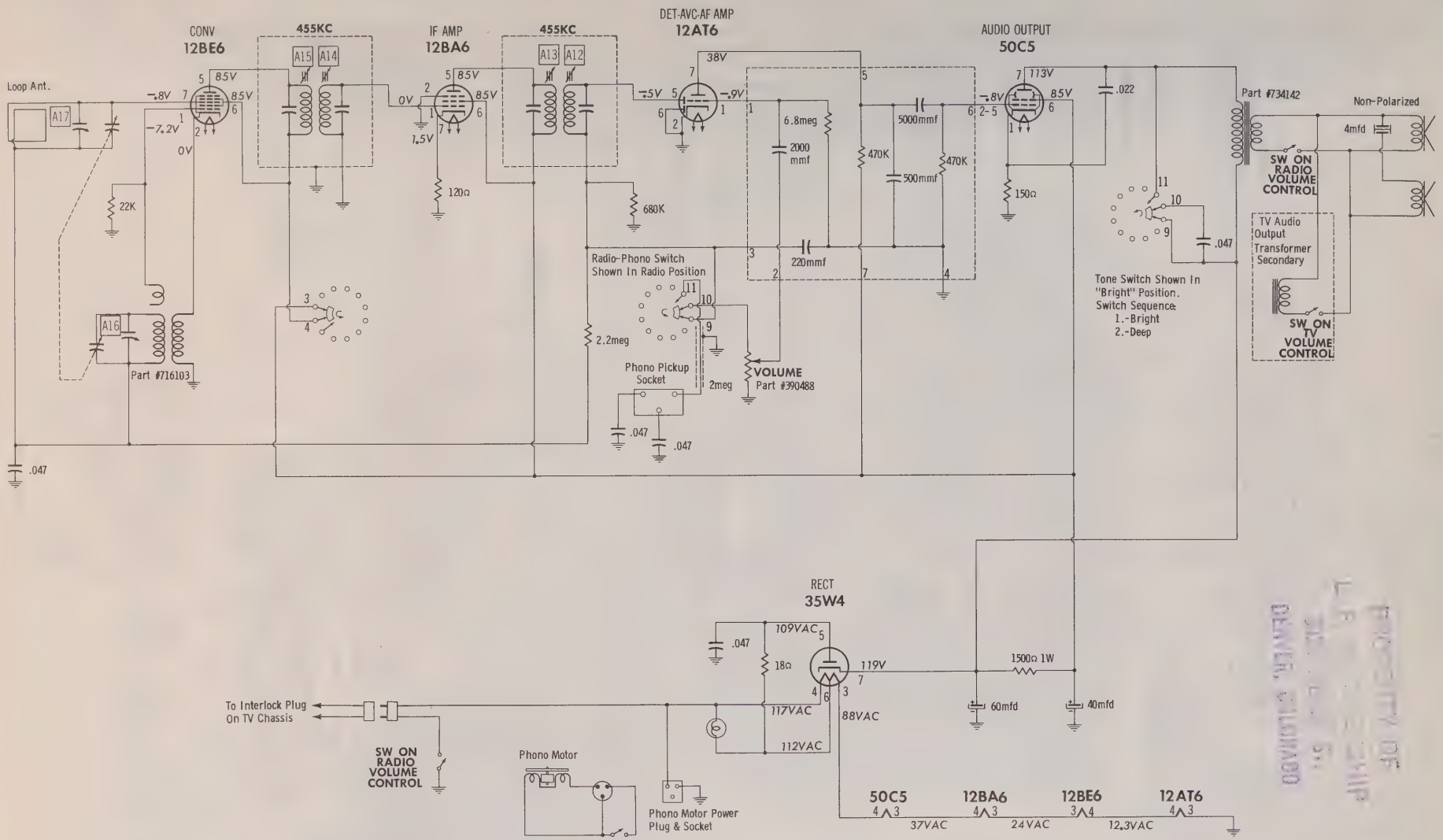
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M2)**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V17**
Has pic, no sound - **V7, V8, V9**
Overloaded picture - **Diode (M3)**

SYNC FAILURE
No vert. sync - **V7, V10**
No horiz. sync - **V7, V10, V12 (Horiz. AFC Diode, some versions)**
No vert. or horiz. sync - **V7, V10**

SWEEP FAILURE
No raster, has sound - **V12, V13, V14, V15, V17**
No vertical deflection - **V10, V11**
Poor vert. linearity or foldover - **V10, V11**
Poor horiz. linearity or foldover - **V12, V13, V14**
Narrow picture - **V12, V13, V14, V16**
Vert. off freq. - **V10, V11**
Horiz. off freq. - **V12**



CHASSIS BOTTOM VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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Radio Chassis, Part #120364-B, Used With TV Chassis Part #120360-E Or #120361-G

RADIO CHASSIS 120364B

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (A) . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the mixer-osc. tube (V2) and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	Not used	44.25MC (Unmod)	Any non-interfering channel	USE VTVM. DC probe to point (B). Common to chassis.	A1	Adjust for maximum deflection. Use only enough generator output to provide no more than 2 volts DC on VTVM.
2.	"	"	"	45.3MC	"	"	A2	"
3.	"	"	"	42.6MC	"	"	A3	"
4.	"	"	"	42.9MC	"	"	A4	"
5.	"	"	"	45.3MC	"	"	A5	"
6.	"	"	"	41.25MC	"	"	A6	Increase generator output and adjust for MINIMUM deflection.
7.	"	"	"	47.25MC	"	"	A7	Increase generator output and adjust for MINIMUM deflection. Repeat steps 4 & 5
8.	"	"	44.0MC	41.25MC 42.9MC 45.75MC 47.25MC	"	Vert. Amp. thru 20K to point (B) . Low side to chassis.		Check for response similar to Fig. 1 with markers as shown. If necessary, retouch A1 to correctly position 45.75MC marker at 30 to 40%.

SOUND IF ALIGNMENT

Use a weak TV signal for the Sound IF Alignment.
Use negative scale on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	Not used	Not used	Not used	Weak TV Signal	DC probe to point (C). Common to chassis.	A8, A9	Adjust for maximum deflection.
10.	"	"	"	"	DC probe to point (D) . Common to chassis.	A10, A11	Adjust for maximum deflection.
11.	"	"	"	"	"	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

VHF OSCILLATOR ALIGNMENT

Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

RADIO ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Set volume control fully clockwise.
Use only enough generator output ot provide a usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
12.	.005MFD	High side to pin 7 (grid) of 12BE6 . Low side to B-.	455KC	Radio	Tuning gang fully open	Across voice coil	A12, A13, A14, A15	Adjust for maximum output.
13.		Loop	1620KC	"	"	"	A16	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
14.		"	1400KC	"	Tune for maximum output.	"	A17	"

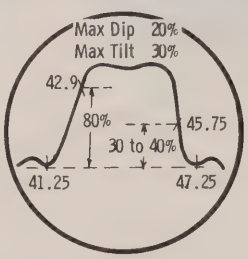
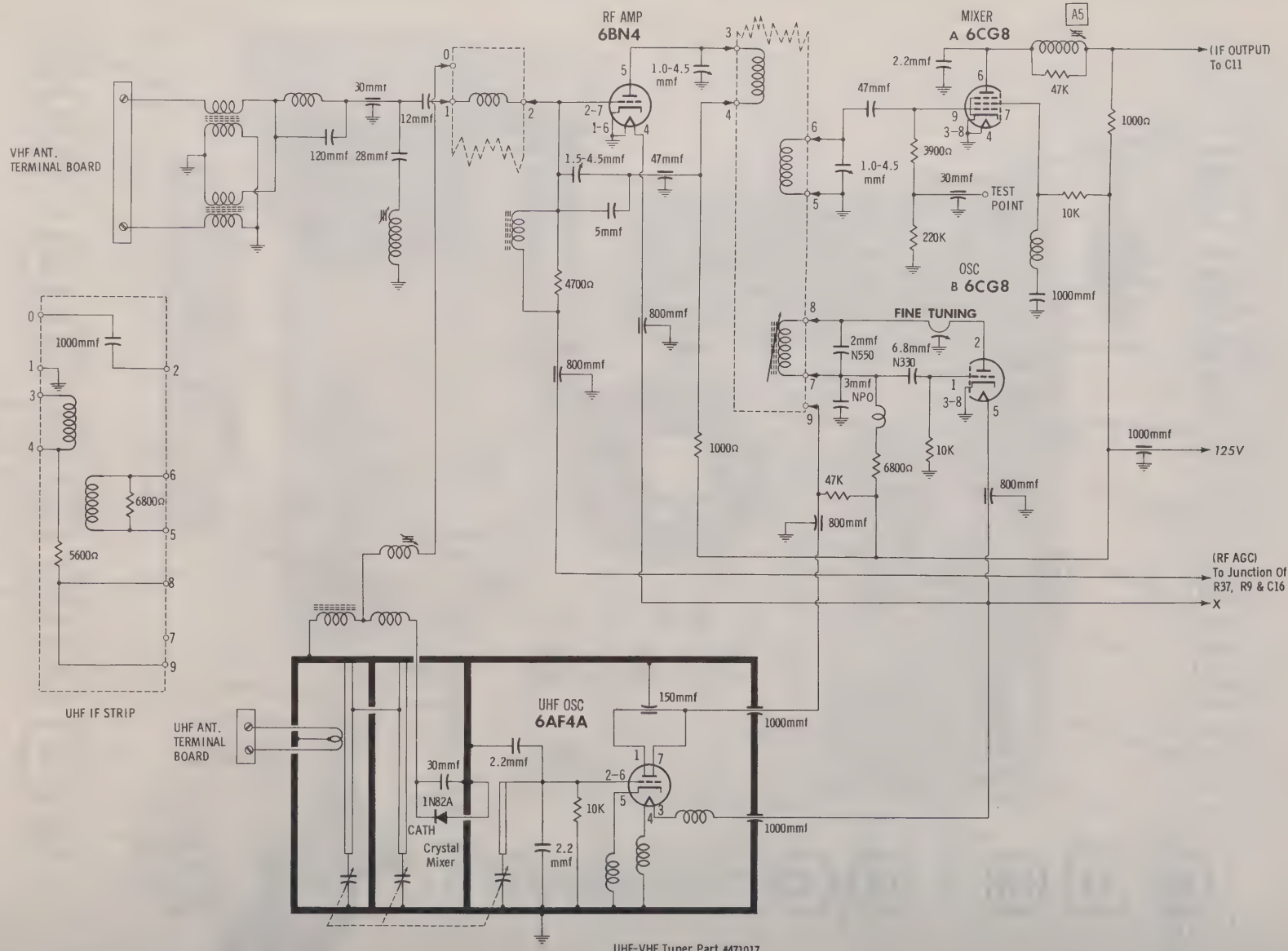


FIG. 1

CHASSIS TOP VIEW



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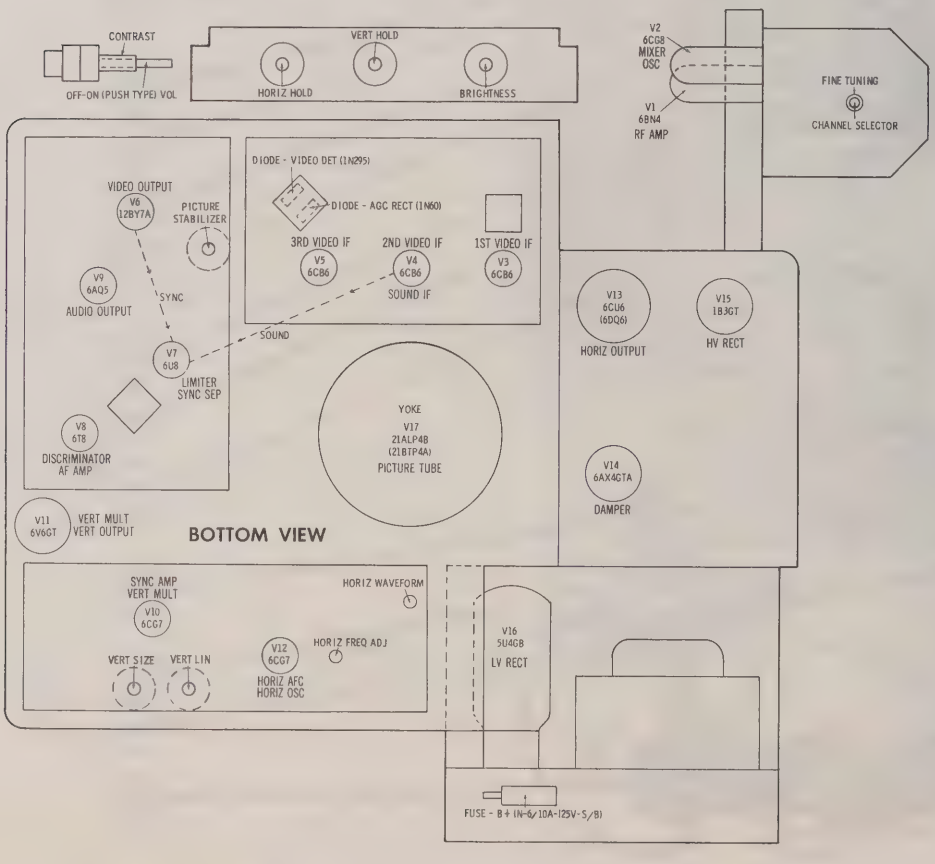
Howard W. Sams & Co., Inc. 1958

ALTERNATE TUNER SCHEMATIC

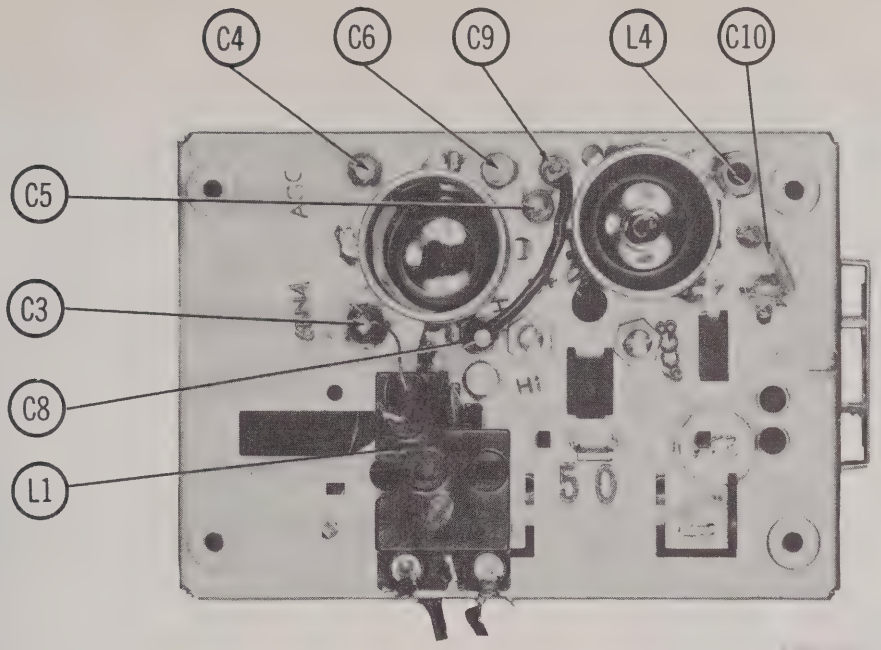
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BN4	0Ω	1.5Meg	0Ω	.1Ω	†3000Ω	0Ω	1.5Meg		
V2	6CG8	10K	†8800Ω	0Ω	0Ω	.1Ω	†3000Ω	†12K	0Ω	224K
V3	6CB6	750K	56Ω	.1Ω	0Ω	†2500Ω	†2500Ω	0Ω		
V4	6CB6	1.4Ω	220Ω	0Ω	.1Ω	†2500Ω	†2500Ω	0Ω		
V5	6CB6	2200Ω	270Ω	.1Ω	0Ω	†2700Ω	†40K	0Ω		
V6	12BY7A	•50Ω	525K	0Ω	0Ω	0Ω	.1Ω	†5000Ω	†10K	0Ω
V7	6U8	†16K	27K	†13K	0Ω	.1Ω	†2500Ω	0Ω	0Ω	2.7Meg
V8	6T8	100K	100K	170K	.1Ω	0Ω	0Ω	0Ω	2.2Meg	†220K
V9	6AQ5	470K	270Ω	.1Ω	0Ω	†1300Ω	†1000Ω	470K		
V10	6CG7	•†1.7Meg	•670K	0Ω	.1Ω	0Ω	†15K	†1Meg	0Ω	0Ω
V11	6V6GT	NC	.1Ω	†375Ω	†0Ω	2.2Meg	TP	0Ω	• 450Ω	
V12	6CG7	•†23K	900K	410K	.1Ω	0Ω	†47K	480K	0Ω	0Ω
V13	6CU6	NC	.1Ω	TP	†8700Ω	450K	TP	0Ω	100Ω	TOP CAP ‡36Ω
V14	6AX4GTA	NC	NC	INF	NC	†28.5Ω	NC	.1Ω	0Ω	
V15	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡496Ω
V16	5U4GB	NC	¶	NC	28Ω	NC	25Ω	NC	¶	
V17	21ALP4B	0Ω	10K	PIN 6 †22Ω	PIN 10 ‡17Ω	PIN 11 •170K	PIN 12 .1Ω			

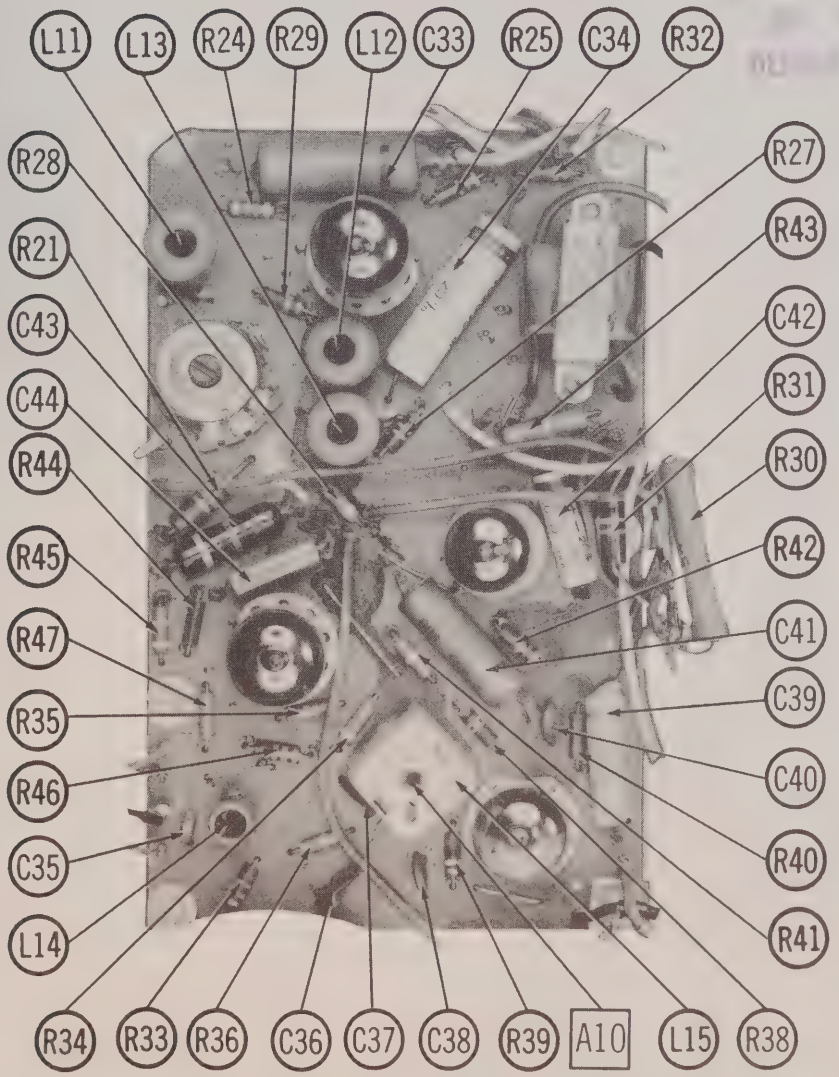
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 265V SOURCE.
‡ MEASURED FROM PIN 3 OF V14.
TP TIE POINT
NC NO CONNECTION



TUBE PLACEMENT CHART



RF TUNER TOP VIEW



VIDEO & SOUND PRINTED BOARD

SET 384 FOLDER 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BN4	
V2	Mixer-Osc.	6Ch8	
V3	1st Video-IF Amp	6CB6	
V4	2nd Video-IF Amp & Sound-IF Amp	6CB6	
V5	3rd Video-IF Amp	6CB6	
V6	Video Output	12BY7A	
V7	Limiter-Sync Sep.	6U8	
V8	Discriminator-AF Amp	6T8	
V9	Audio Output	6AQ5	
V10	Sync Amp -Vert Mult.	6Ue7	
V11	Vert. Mult.-Vert Output	6V6GT	
V12	Horiz. AFC-Horiz. Osc.	6Ue7	
V13	Horiz. Output	6LQ6	Note 1
V14	Damper	6AX4GTA	
V15	HV Rectifier	1B3GT	
V16	LV Rectifier	5U4GB	

Note 1 A 6DQ6 or 6DQ6A may be used in some versions

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: EMERSON PART No.	GENERAL ELECTRIC	SYLVANIA	NOTES
VP1	1A1PM8	21APM8/ 21APM8A ①	21APA4/ 21APB4 ①	① Aluminized ② Silver screen "85"
	1B3PM4	21PM4 ①	21PP4 ①	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	3X	925406	PR4-450	BBRQ0926.5	WQ40		Q-225 MT-2520	R3497 *
B	40	300							
C	40	250							
D	10	100							
C2A	80	300	925405	PR4-700	BBRQ0805	WQ650		Q-187 MT-4520	TVA-4659
B	40	330							
C	100	50							

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	30		981960							
C4	800		981958							
C5	1000		981959	EF-001	MPT-1000			503C-DI		
C6	30		981960							
C7	47		981961							
C8	800		981958							
C9	800		981959							
C10	100		926879	N750-DI 100	TCN-100	CD1U1U	TCT-4J0	NT-531	STCU-T1	N750 5#
C11	1000		982933	BPD-001	DD-102	BYA6DI	FD-1000	DC52I	5HK-DI	
C12	24		926963							N330 5%
C13	1000		926933	BPD-001	DD-102	BYA6DI	ED-1000	DC52I	5HK-DI	
C14	1	200	923315	P288N-1	DF-104	CUB2P1			GEM-201	2TM-P1
C15	.22	200	923435	P288N-22		CUB2P22			GEM-2022	2TM-P22
C16	1000		926833	BPD-001	DD-103	BYA6DI	ED-1000	DC52I	5HK-DI	Note 1
C17	820		925910	1464-00082		1R5T82	ED-820		MS-332	10%
C18	1000		926933	BPD-001	DD-102	BYA6DI	ED-1000	DC52I	5HK-DI	
C19	1000		926933	BPD-001	DD-102	BYA6DI	ED-1000	DC52I	5HK-DI	
C20	20		926937	N750-DI 100	TCN-100	CU0T1U	TCT-100	NT-531	STCU-T1	N750 10%
C21	620		929801			1R5T62	ED-620		MS-332	10%
C22	1000		926881				ED-1000			10%
C23	1000		926933	BPD-001	DD-102	BYA6DI	FD-1000	DC52I	5HK-DI	
C24	47		926895	N750-DI 47	TCN-47	CU0Q47U	TCT-47	NT-5447	STCU-Q47	N750 10%
C25	390		926906		D6-391	L10T39	FD-390		MS-319	10%
C26	1.2		926905	NPO-S1 1.0	TCZ-1		TCO-1		STCCB-V1	10%
C27	68		928886	N750-DI 68	TCN-68	CU0Q68U	TCT-68		STCC-Q68	10%
C28	880		928909		D6-881	1R5T88	ED-880		MS-388	10%
C29	1000		928933	BPD-001	DD-102	BYA6DI	ED-1000	DC52I	5HK-DI	
C30	6.8		926888	N750-S1 6.8	TCZ-6R8	CU0Y68C	TCO-6.8	ZT-5568	STCCB-V68	10%
C31	680				D6-681	1R5T68	ED-680		MS-388	10%
C32	1000		928933	BPD-001	DD-102	BYA6DI	ED-1000	DC52I	5HK-DI	
C33	.047	400	923554	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C34	.047	400	923554	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C35	150		928903	NPO-DI 150	D6-151	L10T15	ED-150	ZT-5315	MS-315	10%
C36	4700		928935	BPD-0047	DD-472	BYA1DD4T	ED-0047	UC-5247	SGA-D47	
C37	4700		928935	BPD-0047	DD-472	BYA1DD4T	ED-0047	UC-5247	SGA-D47	
C38	1000		928933	BPD-001	DD-102	BYA6DI	ED-1000	DC52I	5HK-DI	
C39	.0047	400	923553	P488N-0047	DF-472	CUB4D47	GP-4700	GEM-4147	4TM-D47	
C40	2200		928922	BPD-0022	DD-223	BYA1DD22	ED-2200	UC-5223	SGA-D22	
C41	.033	400	923554	P488N-033	DD-333	CUB4S33	GP-10033	GEM-4133	4TM-S33	
C42	.0047	600	924753	P568N-0047	DF-472	CUB6D47	GP-4700	GEM-6147	6TM-D47	
C43	.01	400	924554	P488N-01	DF-103	CUB4S1	GP-10100	GEM-411	4TM-S1	
C44	.0047	400	923554	P488N-0047	D6-222	5WS722	ED-2200	UC-5222	SGA-T22	
C45	.01	400	923554	P488N-01	D6-102	CUB4S1	GP-10000	GEM-411	4TM-S1	
C46	.0047		928909	BPD-001	DD-102	BYA6DI	ED-1000	DC52I	5HK-DI	
C47	1000		928909	BPD-001	DD-103	BYA6DI	ED-1000	DC52I	5HK-DI	
C48	.0047	400	924453							10%
C49	.1	400	924515	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C50	.1	400	924515	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	Note 2
C51	.01	400	924554	P488N-01	DE-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C52	1000		928933	BPD-001	DD-103	BYA6DI	ED-1000	DC52I	5HK-DI	
C53	82		91J80	1469-000082	D6-820	22R5Q82	ED-82		MS-462	10%
C54	82		91J80	1469-000082	D6-820	22R5Q82	ED-82		MS-462	10%
C55	.047	400	923554	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C56	.047	300	924354	P288N-047	DF-503	CUB2S47		GEM-4147	4TM-S47	
C57	.033	400	923524	P488N-023	DD-303	CUB4S22	ED-02	GEM-4122	4TM-S22	
C58	.47	200	923355	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C59	330		91J67	1469-00033	D6-331	1R5T33	ED-330		MS-333	10%
C60	.01	600	924614							10%
C61	820		91J39	1464-00082		1R5T82	ED-820		MS-332	10%
C62	.001	400	924513	P488N-001	D6-102	CUB6DI	GP-1000	GEM-631	6TM-D1	
C63	.1	400	924515	P488N-01	DF-104	CUB4P1		GEM-401	4TM-P1	
C64	.22	200	923325	P288N-22		CUB2P22		GEM-2022	2TM-P22	
C65	1	400	924515	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C66	.01	400	923514	P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C67	100	2000	923932							10%

Note 1. Not used in some versions.
Note 2. In some versions a .12MFD 10% (Part #924618) may be used in this application.
In other versions, a .022MFD (Part #924534) may be connected in parallel with C50.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	600Ω	½	390467					Contrast
B	1Meg							Volume
C	Switch							
R2A	50k	½	390410	B-51 Not Req.	A47-50K-S FS-3	QU-123 Not Req	L-35 Not Req	Horiz. Hold
B	Shaft							
R3A	1.5Meg	1	390472	AK-7	A47-1.5Meg S	QU-124	U-35	Vert. Hold
B	Shaft				FS-3	Not Req	Not Req	
R4A	200K	½	390408	B-46	A47-200K-S	QU-122	U-40	Brightness
B	Shaft			Not Req	FS-3	Not Req	Not Req	
R5	1500Ω	½	390481					Vert. Lin.
R6	2Meg	½	390403					Vert. Size
R7A	100K	½	390287	BK40	A47-100K-S	QU-128	PTA15L	Local Distance
B	Shaft			Not Req	FN-3	TQ	Not Req	
R8	100K	½	390404	Not Req				Picture Stabilizer

RESISTORS

All wattages 1/2 watt, or less, unless otherwise stated.

ITEM No.	RATING: OHMS	WATT	EMERSON PART No.	NOTES
R9	1.5Meg		940332	
R10	22K		940812	
R11	4700Ω		940652	
R12	470K		940433	
R13	470Ω		950412	
R14	56Ω		940192	
R15	10K		940732	
R16	470Ω		950412	
R17	220Ω		940332	
R18	2200Ω		940572	
R19	2200Ω		940572	
R20	4700Ω		940652	
R21	47K	1	970892	
R22	4700Ω		940652	
R23	4700Ω		940652	
R24	4700Ω		940652	
R25	470K		950133	
R26	56K		940812	
R27	10K		940732	
R28	4700Ω		940652	
R29	15K		940772	
R30	500Ω	4		Note 1
R31	10K	2	780732	
R32	150K		940812	
R33	27K		940835	
R34	470Ω		950412	
R35	18K		940768	
R36	22K		940812	
R37	15Meg		950492	
R38	100K		940972	
R39	100K		940972	
R40	2.5Meg		950382	
R41	220K		950552	
R42	470K		950133	
R43	270Ω	½	970352	
R44	2.2Meg		951292	
R45	470K		950133	

ITEM No.	RATING: OHMS	WATT	EMERSON PART No.	NOTES
R46	47K		940832	
R47	22K		940812	
R48	1Meg		951213	
R49	10K		940732	
R50	3300Ω		940812	
R51	100K		940972	
R52	100K		940972	
R53	470K		941132	
R54	220K		950552	
R55	100Ω		950252	
R56	2.2Meg		951292	
R57	100K		940972	
R58	330Ω		940372	
R59	10K		940732	
R60	560Ω		950432	
R61	560Ω		940432	
R62	330K		941092	
R63	1.5Meg		941252	
R64	820K		941092	
R65	100K		940972	Note 3
R66	82K		940952	
R67	39000		940832	
R68	150K		941012	
R69	330K		941092	
R70	6200Ω		940712	
R71	47K		940892	
R72	150K		941012	
R73	100Ω		950252	
R74	5300K		941112	
R75	100Ω	2	780252	
R76	330K		940732	
R77	10K		940072	
R78	18Ω		940072	
R79	20000Ω	10	954129	
R80	470Ω	2	790412	
R81	1000Ω	2	7e0492	

Note 1 Some versions may use two 10K, 2W (Part #780732) in parallel in this application
Note 2 Not used in some versions
Note 3 UHF VHF Chassis 120354-G uses a 680Ω, 2W (Part #780592) in this application

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: EMERSON PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
T1	117VAC	540VCT @1.7A	5V @.380A	6.3V @3A	730094					

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
T3	Vert. Output	75H139	Z1900①	A-3823②	V307②	A-8144②	28S72③	108X③	
T3A	Yoke-Horiz. (9.4MH)	708313	DF807 ④ ⑤	MDF-97 ④	Y90P19/43 ⑤	OY-18A ④	Y-16 ⑤	Y-41 ⑥	
B	(90°)-Vert (37MH)		⑤ ⑥	⑤ ⑥	⑤ ⑥	⑤ ⑥	⑤ ⑥	NWG ⑥	
T4	Horiz. Output	75H142	FB49 ② ④ ⑤	HVO-52 ④ ⑤	X093 ④ ⑤	HO-259 ④ ⑤	FLY-16 ② ④ ⑤	D-50 ② ④ ⑤	

① Use 8 to 1 turns ratio.
② Drill new mounting hole(s).
③ Use original horizontal damping network, if necessary
Cut and form a piece of .010 gauge fish paper inside the yoke itself and support with an acetate cement, to provide an insulation between the width sleeve and the yoke proper.
④ Connect same as original. Use original rear cover, centering device and width sleeve.

HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
	8	9	4	2	9	9	9
	7	5	8	1	5	5	5
	6	5	7	6	5	5	5
	4	NC See Note ④	NC See Note ④	4	NC See Note ④	NC See Note ④	NC See Note ④
	2	1	5	7	1	1	1
	1	1	1	8	1	1	1
Special Note: ⑦		5 ⑧	5 ⑦		5 ⑧	5 ⑧	5 ⑧

① Install new damping network, consisting of approx. 56MMF ② 3KV and 1000Ω, 1W connected in series across horizontal yoke terminals #3 and #7.
③ If insufficient width, add capacity (approx. 50-100MMF ② 6KV) across horizontal yoke terminals #3 and #1.
④ Remove one turn from filament winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: EMERSON PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
T5	4000Ω	3-4Ω	734146	22110 ①	A-3038 ①	A-3326 ①	26S48 ①	S-6X ①	① Use original channel mounting frame.

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: EMERSON PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	180J1 ①	4AD7	① Used in Models 1244, 45, 46, 47
	6"	PM	3-4Ω	180J40 ②	6A1	② Used in Models 1242, 43, 48, 49, 50, 59
	6"	PM		180J40 ③		③ Two used in Models 1272, 73, 74, 75
	5 x 7"	PM		180J73 ④		④ Used in Models 1260, 61
	4"	PM		180J74 ⑤		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	NOTES
L1	Ant. Trans.	981944	
L2	IF Trap Coil	981945	
L3	IF Trap Coil	981946	

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	NOTES
L4	Mixer Plate Coil	981943	

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L5	4) 25MC Trap	708203				
L6	1st. Video IF	720289				Includes 47 25MC Trap
L7A	2nd. Video IF	720288				
B	1st. Sound IF					
L8A	3rd. Video IF	720199				
B	2nd Sound IF					
L9	4th Video IF	720247	17-4523*	TV-130 *	6219 *	
L10	RF Choke	705014	19-8022	TV-180	6152	20 Microhenries
L11	Shunt Peaking Coil	708279	19-3300	TV-203	6174	500 Microhenries
L12	Series Peaking Coil	708273	19-4400	TV-302	6136	440 Microhenries
L13	Shunt Peaking Coil	708279	19-3500	TV-203	6174	500 Microhenries
L14	RF Choke	708271	19-1003	BC-564	4608	4 & 8 Microhenries
L15	Sound Discriminator	708276				
L16	RF Choke	705021	19-1005	BC-566	4612	10 Microhenries, IRC Part #CL-1

* Drill new mounting hole.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES: PRI.	SEC.	REPLACEMENT DATA: EMERSON PART No	Meissner PART No	Merit PART No	Miller PART No	Ram PART No	Thordorson PART No	NOTES
L17	11Ω *		714102						Horiz. Osc.
L18	31Ω		708275						Horiz. Phase
									* Tapped ② 85Ω

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D C RESISTANCE	INDUCTANCE IO CURRENT 1000 "A"	REPLACEMENT DATA: EMERSON PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordorson PART No	Triad PART No
L19	.240A	237Ω	64 Hy	737019	C5043 ①	C-2998 ①	C-2328 ①	26C93	C-24X

① Drill new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: EMERSON PART No. FUSE	EMERSON PART No. HOLDER	LITTELFUSE PART No FUSE	LITTELFUSE PART No HOLDER	BUSS PART No FUSE	BUSS PART No HOLDER
M1	N	6/10A 125V S/B	808065		333 .600 (N 6/10A 125V S/B)	346010	N 6/10	HN 1/2 to 3/4

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: EMERSON PART No.	CBS PART No	SYLVANIA PART No	NOTES
M2	1N295	817036 ①	1N60	1N60	Video Detector (Clip-in)
M3	1N60	817064	1N60	1N60	AGC Rectifier (Clip-in)

① Alternate part #817061 may be used in some versions.

EMERSON MODELS 1212, 1213, 1228, 1229, 1238, 1239, 1244, 1245, 1246, 1247, 1272, 1273, 1274, 1275, 1280, 1281 (Ch. 120351E, 120351G, 120355E, 120354G, 120360E, 120361G)

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

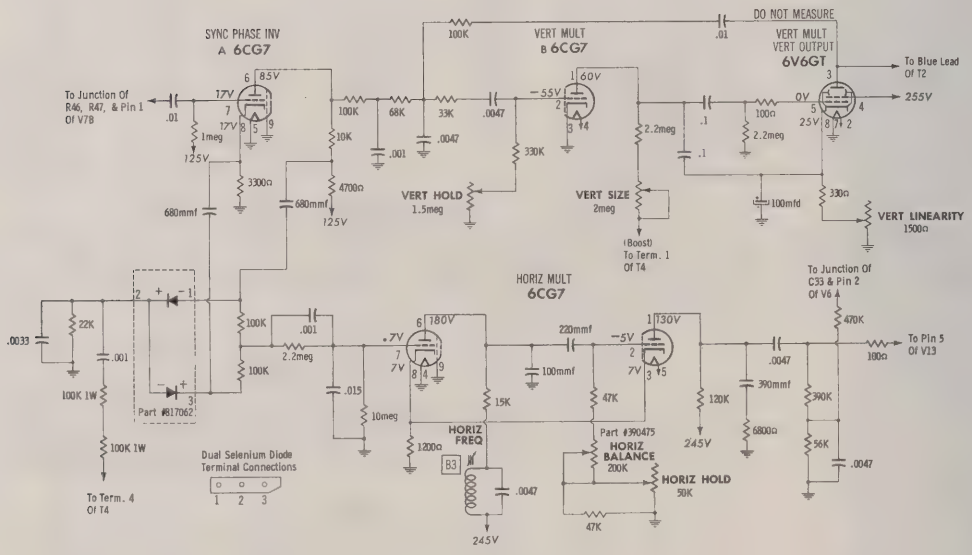
MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M4	Tuner	471020	VHF - Ch. 120353-E, 120351-E, 120360-E
	Tuner	471017	UHF-VHF Ch. 120352-G, 120354-G, 120361-G
M5	Width Sleeve	412302	
M6	Centering Device		Includes yoke rear cover
M7	Ion Trap	708235	Alternate part #708325
	Printed Board	471021	Complete sweep assy., less tubes - Ch. 120351-E, 120352-G
	Printed Board	471025	Complete sweep assy., less tubes -Ch. 120353-E, 120360-E, 120354-G, 120361-G
	Printed Board	471022	Complete video assy., less tubes

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

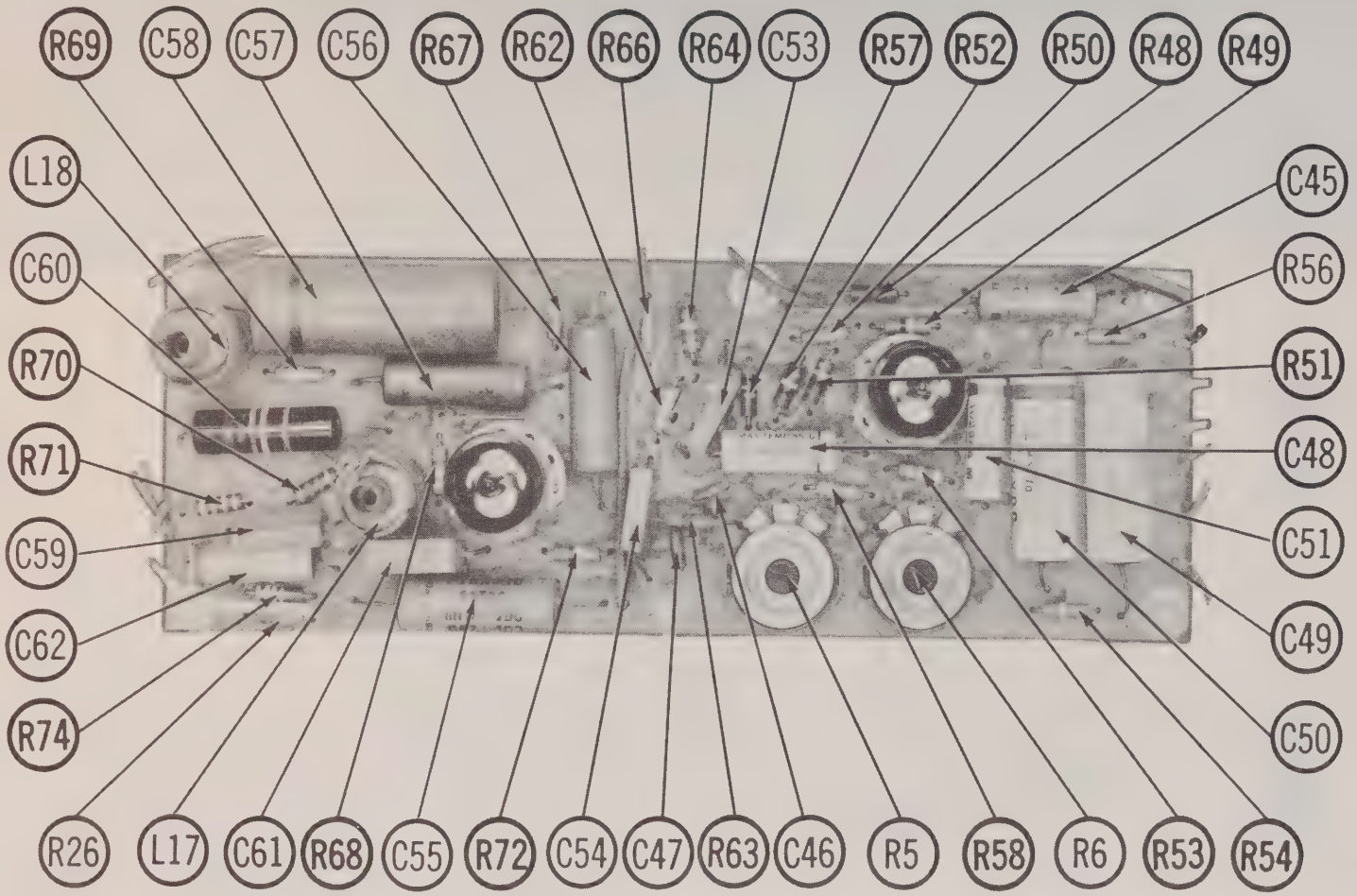
NAME	PART NO.	DESCRIPTION
Safety Glass	520243	
Mask	460697	
Knob	450248	Channel Selector - Ch. 120351-E, 120353-E
Knob	460690D	VHF Channel Selector - Ch. 120352-G, 120354-G
Knob	450248A	Channel Selector - Ch. 120360-E
Knob	460690	VHF Channel Selector - Ch. 120361-G
Knob	450252	Fine Tuning - Ch. 120351-E, 120353-E
Knob	460692	Fine Tuning - Ch. 120352-G, 120354-G, 120361-G
Knob	450252A	Fine Tuning - Ch. 120360-E
Knob	460871	UHF Channel Selector - Ch. 120352-G, 120354-G
Knob	460871A	UHF Channel Selector - Ch. 120361-G
Knob	450249	On-off-volume - Ch. 120351-E, 120353-E
Knob	460852	On-off-volume - Ch. 120352-G, 120354-G
Knob	450249A	On-off-volume - Ch. 120360-E
Knob	460905	On-off-volume - Ch. 120361-G
Knob	450251	Contrast - Ch. 120351-E, 120353-E
Knob	460853	Contrast - Ch. 120352-E, 120354-G
Knob	450251A	Contrast - Ch. 120360-E
Knob	460694	Contrast - Ch. 120361-G
Knob	460713C	Brightness, vert. hold, horiz. hold
Knob	460834	Radio Control
Knob	460835	Radio-Phono
Knob	460832	Radio tuning
Cabinet	140833	Models 1212, 1213
Cabinet	140835	Models 1228, 1229, 1238, 1239
Cabinet	140829	Models 1244, 1245, 1246, 1247
Cabinet	140851	Models 1272, 1273
Cabinet	140852	Models 1274, 1275
Cabinet	140861	Models 1280, 1281
Leg	412546	Models 1244, 1245, 1246, 1247
Leg	620301	Models 1280, 1281



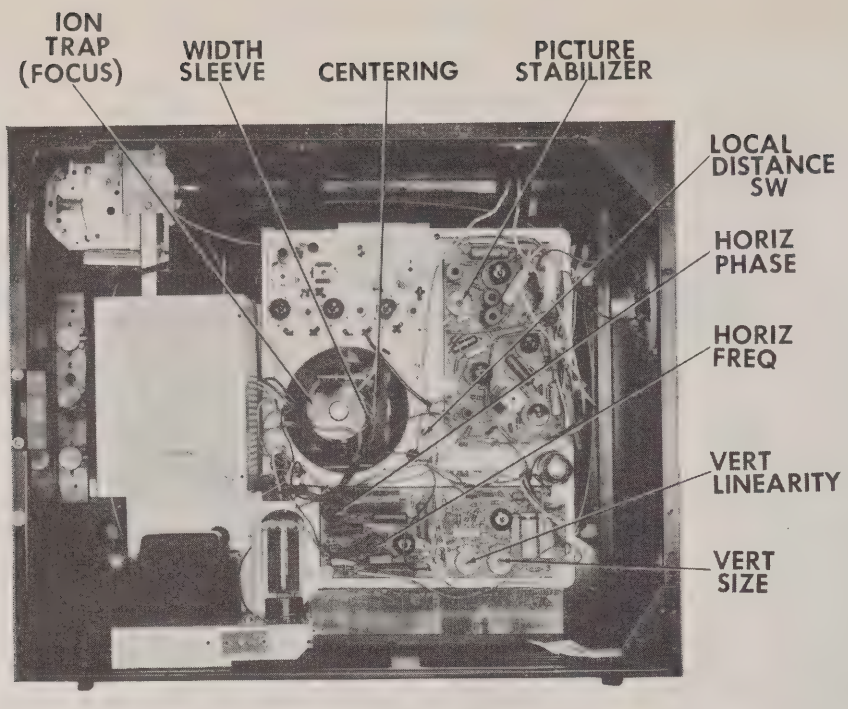
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

Vert. & Horiz. Sweep Circuit Connections Used In Chassis 120353-E & 120354-G

ALTERNATE SWEEP CIRCUIT



SWEEP PRINTED BOARD



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS FOR CHASSIS #120351-E AND 120352-G

Turn the set on and tune in a TV station, preferably with a test pattern. Connect a short jumper across terminals of the horizontal phase coil (L18).
Set the horizontal hold control fully clockwise. Adjust horizontal frequency slug (B1) until the picture synchronizes horizontally. Remove the jumper from L18. Connect the vertical amplifier of the scope thru a low capacity probe to point ⟨E⟩. Low side to chassis. Adjust the horizontal phase slug (B2) for a waveform similar to Fig. 2 with the broad and narrow peaks of equal amplitudes.
If necessary during the adjustment of B2, keep the picture in sync with the horizontal hold control or B1. Remove the scope and retouch B1 for the following conditions.
1. At full clockwise position of the horizontal hold control, a blanking bar or horizontal jitter should be evident.
2. At full counter clockwise position of the horizontal hold control, the picture should lose sync with 4½ to 5 diagonal bars slanting down to the left. If the picture remains in sync at either extreme setting of the horizontal hold control, switch off channel and back again so that the picture will fall out of sync.

HORIZONTAL SWEEP CIRCUIT ADJUSTMENT FOR CHASSIS #120353-E, 120354-G, 120360-E AND 120361-G

Turn the set on and tune in a TV station, preferably with a test pattern.
Turn the "Local-Distant" control fully counter clockwise. Turn the "Picture Stabilizer" control fully clockwise.
Connect a clip lead across the horizontal frequency coil.
Connect a clip lead from the grid of the horizontal mult. tube to chassis.
Set the horizontal hold control to the center of its range.
Adjust the horizontal balance control until the picture synchronizes horizontally.
Remove the short from the horizontal frequency coil and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.
Remove the short from the horizontal mult. grid. If the area permits, readjust the "Local-Distant" control to distant position.

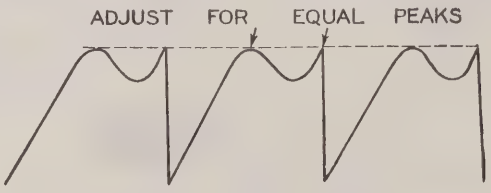
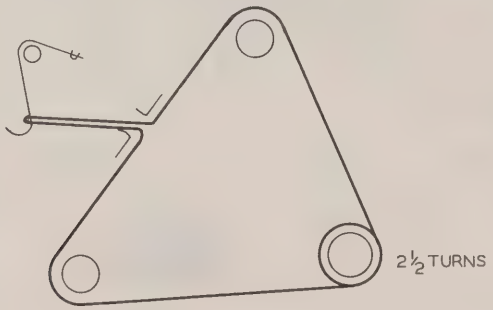


FIG. 2



UHF DRIVE CORD STRINGING

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from the top and 3 from the side.

2. Remove the rear cover by sliding the mounting clamps inward.

3. Remove the bonding strap between the tuner and chassis, the tuner leads, volume and contrast control leads, picture tube socket, yoke leads and HV lead.

4. Remove 4 chassis bolts from the bottom.

5. Partially remove the chassis and remove the speaker leads.

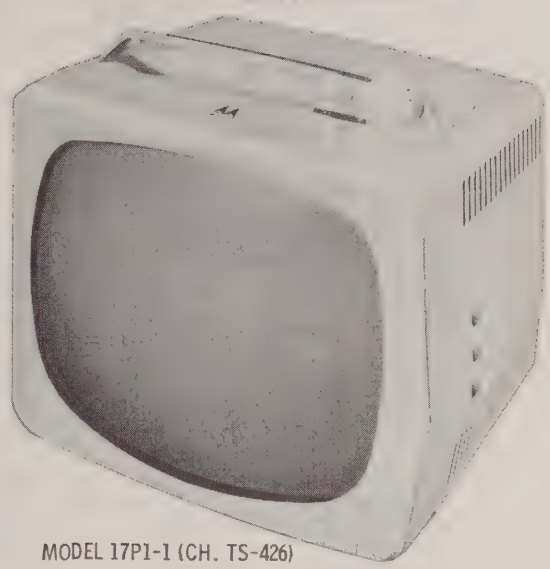
6. Remove the chassis.

7. Loosen the 2 metal screws holding the front tuner bracket.

8. Remove 2 metal screws holding the rear tuner bracket and remove the tuner and volume control.

9. Remove 2 nuts holding the speaker and remove the speaker.

NOTE: To operate speaker with earphone leads disconnected, jumper terminals 5S and 6S of the speaker terminal strip.



MODEL 17P1-1 (CH. TS-426)

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

TRADE NAME	Motorola	MODELS	CHASSIS
		Y17P1-1A, Y17P1-2A, Y17P2-1A	TS-426Y
		Y17T30CHA, Y17T31GPA	TS-428Y
		17P1-1, 17P1-2, 17P2-1	TS-426
		17T30CH, 17T31GP	TS-428
MANUFACTURER	Motorola, Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Television Receiver		
TUBES	Eighteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 165 Watts, 1.5 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of the VHF oscillator it is necessary to remove the chassis from the cabinet. (See disassembly instructions).

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws from the bottom holding the front of the cabinet. Pull bottom of front out and lift up to remove.

SPECIAL ADJUSTMENTS

A. AGC
Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
The focus may be varied in steps by the position of a plug in the focus adjustment board. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A10) located on top of chassis.

FUSE DEVICE

A 7.5Ω fusible resistor (R52) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

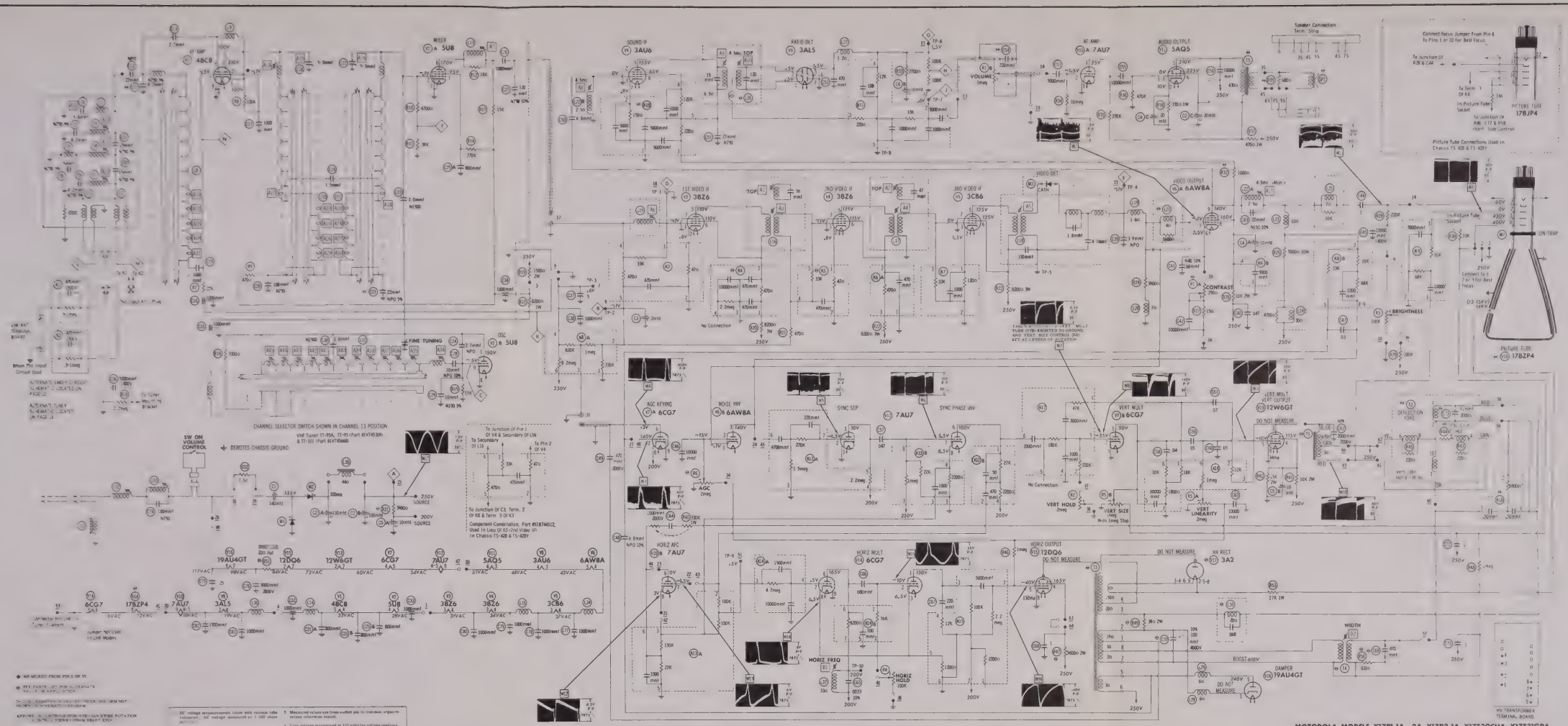
MOTOROLA MODELS Y17P1-1A, -2A, Y17P2-1A, Y17T30CHA, Y17T31GPA, 17P1-1, -2, 17P2-1, 17T30CH, 17T31GP (Ch. TS-426, Y, TS-428, Y)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H286

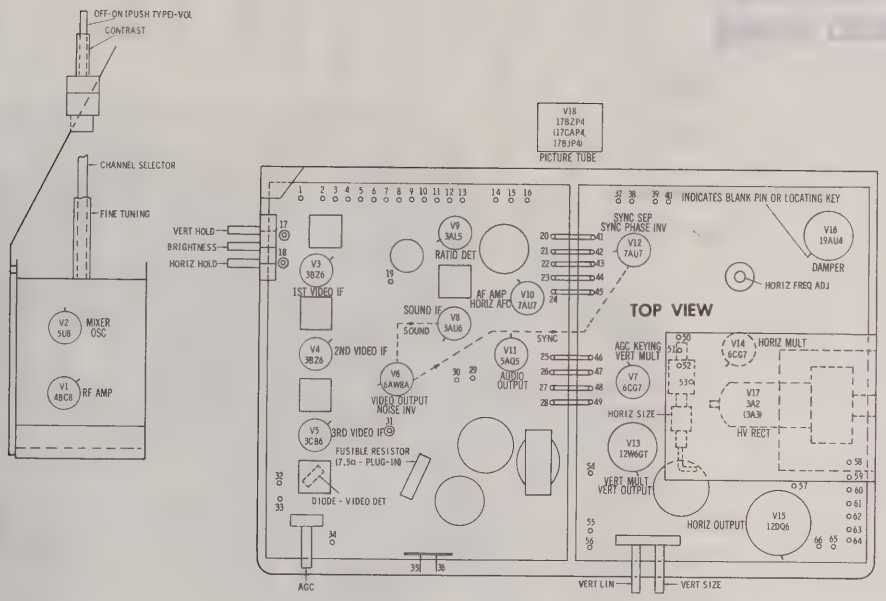
FOLDER 3



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

MOTOROLA MODELS Y17P1-1A, -2A, Y17P2-1A, Y17T30CHA, Y17T31GPA, 17P1-1, -2, 17P2-1, 17T30CH, 17T31GP (Ch. TS-426, Y, TS-428, Y)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

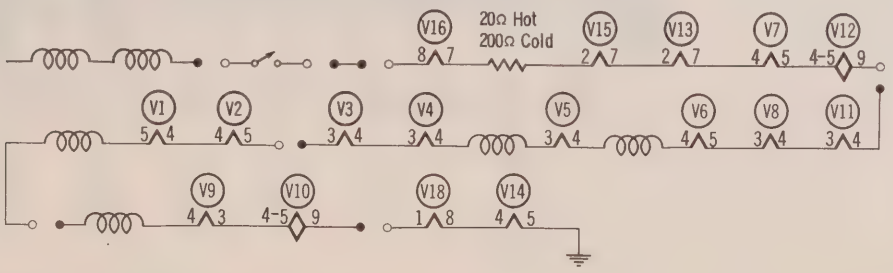
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R52), Rectifier (M1, M2)**

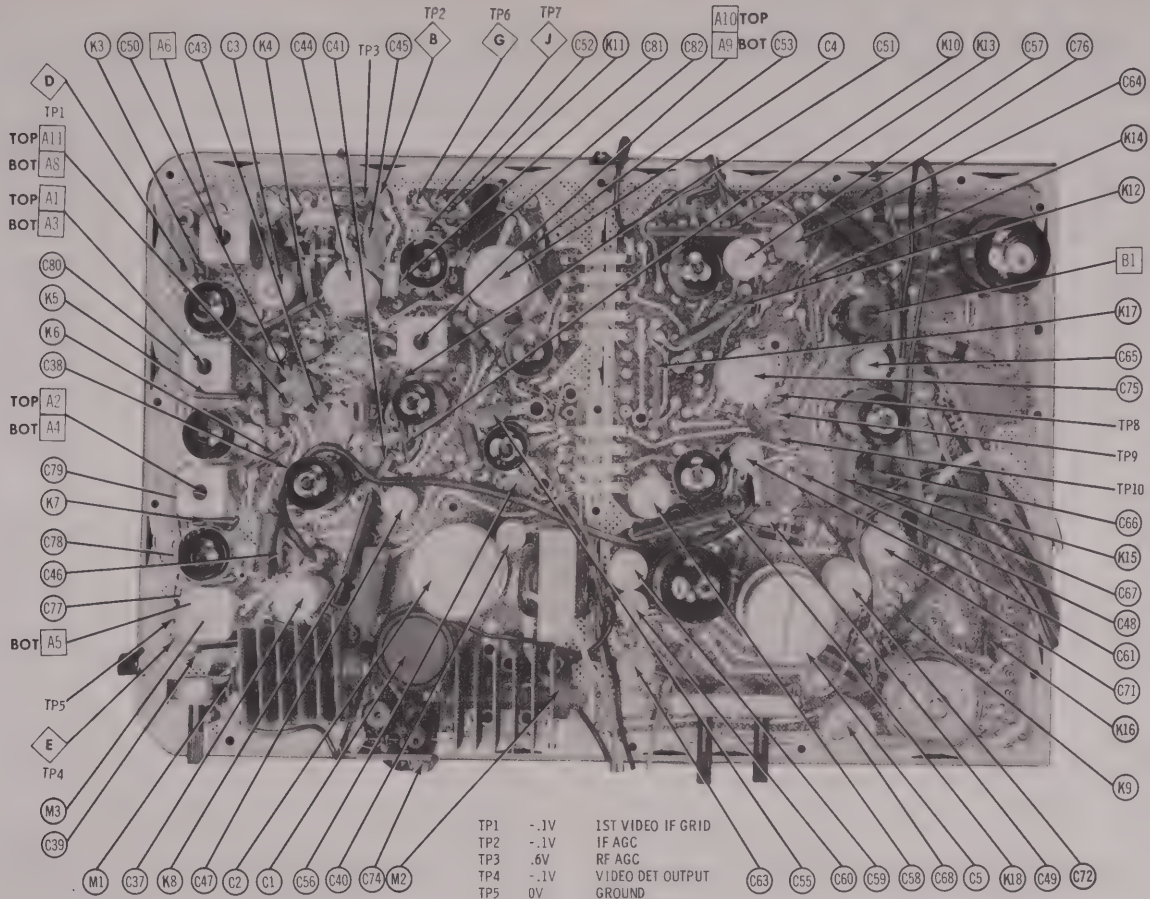
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M3), V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V18**
Has pic, no sound - **V8, V9, V10, V11**
Overloaded picture - **V7**

SYNC FAILURE
No vert. sync - **V6, V12**
No horiz. sync - **V6, V12, V10**
No vert. or horiz. sync - **V6, V12**

SWEEP FAILURE
No raster, has sound - **V10, V14, V15, V16, V17, V18**
No vertical deflection - **V7, V13**
Poor vert. linearity or foldover - **V7, V13**
Poor horiz. linearity or foldover - **V14, V15, V16**
Narrow picture - **V14, V15, V16, M1, M2**
Vert. off freq. - **V7, V13**
Horiz. off freq. - **V14**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below.)





TP1	-.1V	1ST VIDEO IF GRID
TP2	-.1V	IF AGC
TP3	.6V	RF AGC
TP4	-.1V	VIDEO DET OUTPUT
TP5	0V	GROUND
TP6	1.3V	RATIO DETECTOR
TP7	.6V	AUDIO
TP8	0V	GROUND
TP9	-.2V	HORIZ AFC
TP10	205V	HORIZ OSC

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Remove deflection yoke plug from the chassis after removing the hex head screw. Connect a 2200Ω, 50 watt resistor from point Ⓐ to chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 6 volt bias supply to point Ⓑ . Positive to chassis.
Disable the local oscillator by connecting a clip lead from point Ⓒ to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.005MFD	High side to point Ⓓ . Low side to chassis.	44.0MC (10MC Swp)	41.25MC	Any non-interfering channel	Vert. Amp. thru 47K to point Ⓔ . Low side to chassis.	A1	Adjust to place marker in trap notch. (See Fig. 1).
2.	"	"	"	47.25MC	"	"	A2	"
3.	"	"	"	42.25MC	"	"	A3	Adjust to place marker at 70% on curve as in Fig. 1.
4.	"	"	"	45.75MC	"	"	A4	"
5.	"	"	"	42.25MC 45.75MC	"	"	A5	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	High side to point Ⓕ . Low side to chassis.	"	41.25MC 42.25MC 45.75MC 47.25MC	"	"	A6, A7	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. If necessary SLIGHTLY retouch A1 thru A7 for desired response.

SOUND IF ALIGNMENT

Turn contrast control fully clockwise.
Connect two matched 100K (±1%) resistors in series from point Ⓖ to chassis. The junction of these two resistors is alignment point Ⓗ as shown on the schematic.
Use only enough generator output to provide a usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.005MFD	High side to point Ⓔ . Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓖ. Common to chassis.	A8, A9	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point Ⓙ. Common to point Ⓗ.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Tune the receiver to a local TV station and advance the contrast control. Adjust the fine tuning until there is a 4.5MC beat pattern in the picture.
Adjust A11 for MINIMUM beat pattern in the picture between the two points of maximum beat pattern.

VHF RF AND MIXER ALIGNMENT

Unplug antenna lead in from tuner and connect short from point Ⓛ to point Ⓜ . Connect a clip lead from point Ⓚ to chassis in order to ground AGC.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	Not used	159MC (400∿ 30% AM)	7	Vert. Amp. thru 47K to point Ⓕ . Low side to chassis.	A12	Adjust for MINIMUM 400∿ indication.
10.	"	"	"	112MC (400∿ 30% AM)	6	"	A13	"
11.	"	"	213MC	211.25MC 215.75MC	13	"	A14	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown.
12.	"	"	177MC	175.25MC 179.75MC	7	"	A15, A16	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Repeat steps 11 and 12, if necessary.
13.	"	"	85MC	83.25MC 87.75MC	6	"	A17, A18, A19	Adjust in numerical order for response similar to Fig. 4 with markers as shown. First two adjustments are for correct marker positions and the third adjustment is for maximum gain and proper tilt.
14.	"	"	79MC	77.25MC 81.75MC	5	"	A20, A21, A22	"
15.	"	"	69MC	67.25MC 71.75MC	4	"	A23, A24, A25	"
16.	"	"	63MC	61.25MC 65.75MC	3	"	A26, A27, A28	"
17.	"	"	57MC	55.25MC 59.75MC	2	"	A29, A30, A31	"
18.	"	"	"	42.5MC 44.5MC	"	"	A32, A33,	Adjust for MINIMUM gain with flat response A32 affects 42.5MC marker and A33 affects 44.5MC marker.

ALIGNMENT INSTRUCTIONS (cont)

VHF OSCILLATOR ALIGNMENT

Connect a clip lead from point (K) to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
19.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	215.75MC	13	Vert. Amp. thru 47K to point (E). Low side to chassis.	A34	Adjust to place sound marker in trap notch as in Fig. 5.
			207MC	209.75MC	12		A35	
			201MC	203.75MC	11		A36	
			195MC	197.75MC	10		A37	
			189MC	191.75MC	9		A38	
			183MC	185.75MC	8		A39	
			177MC	179.75MC	7		A40	
			85MC	87.75MC	6		A41	
			79MC	81.75MC	5		A42	
			69MC	71.75MC	4		A43	
			63MC	65.75MC	3		A44	
			57MC	59.75MC	2		A45	

UHF INPUT ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
20.	50Ω Resistor	High side to point (N). Low side to chassis.	44MC (10MC Swp)	41.25MC 45.75MC	UHF	Vert. Amp. thru 47K to point (F). Low side to chassis.	A46, A47	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.
21.	Short Antenna Terminals	Not used	Not used	Not used	"	USE VTVM. DC probe to point (E). Common to chassis.	A48	Adjust for maximum DC noise voltage.

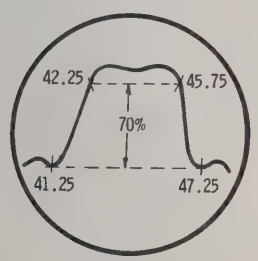


FIG. 1

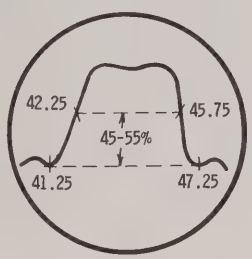


FIG. 2

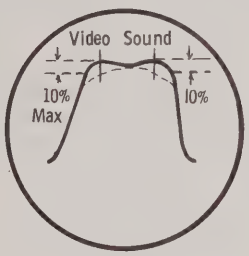


FIG. 3

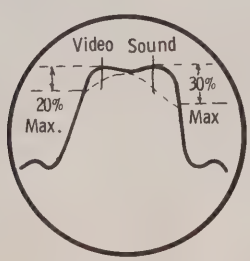


FIG. 4

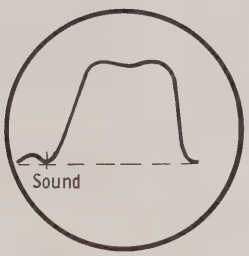
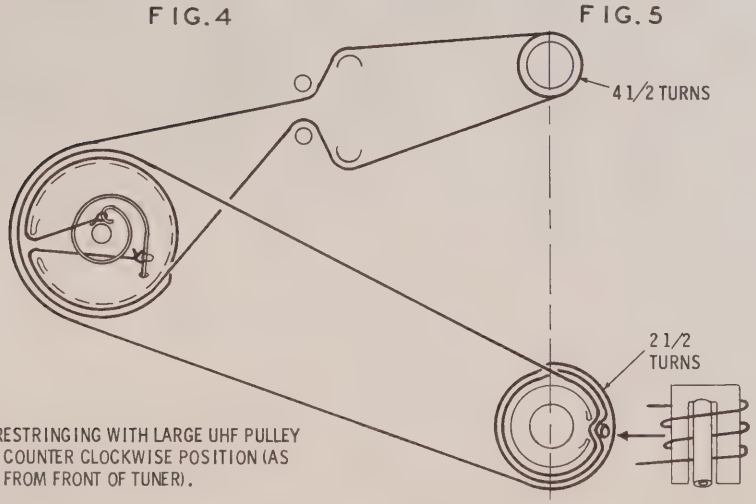
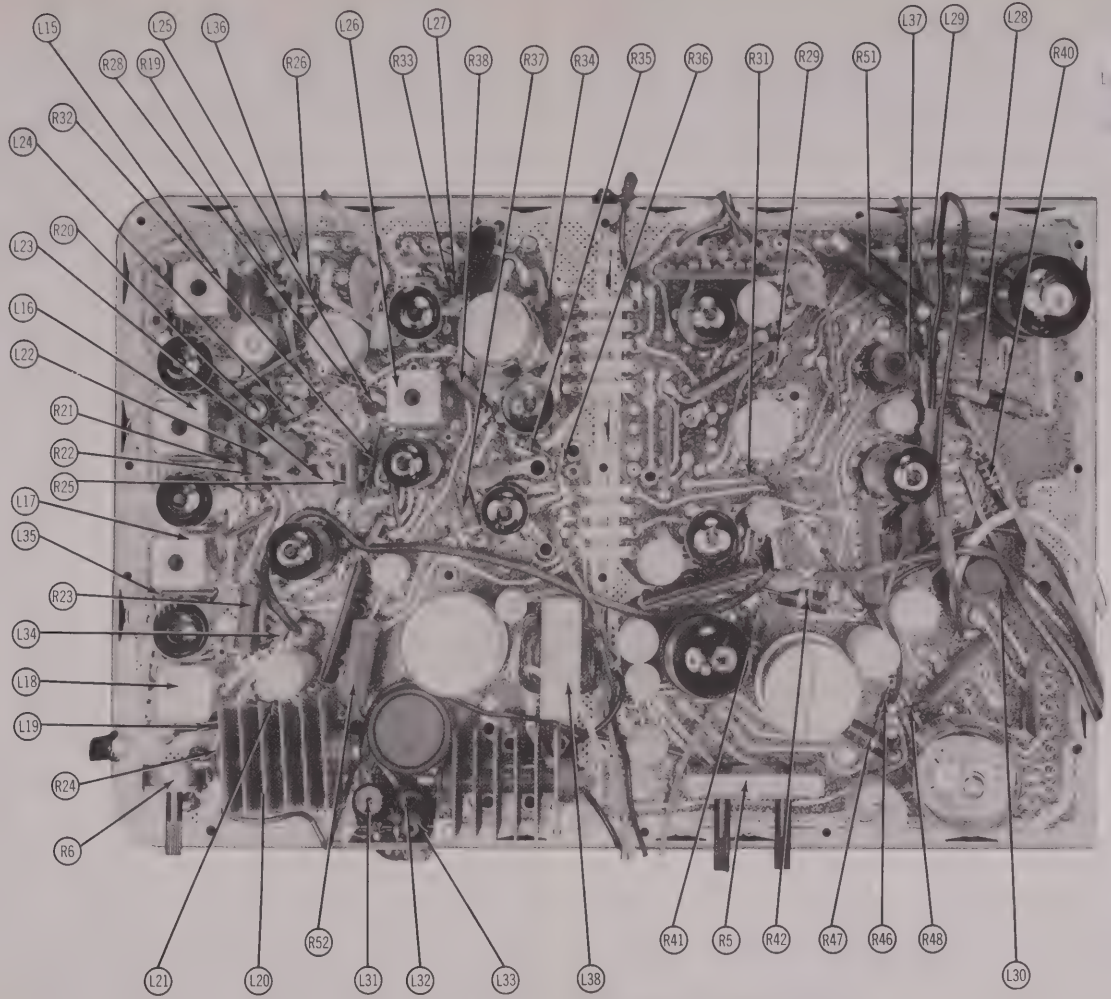


FIG. 5



UHF DRIVE CORD STRINGING



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	4BC8	†2000Ω	INF	INF	5.5Ω	4.5Ω	INF	1.5Meg	0Ω	0Ω
V2	5U8	†12K	43K	†270K	5.5Ω	6.5Ω	†15K	0Ω	0Ω	15K
V3	3BZ6	240K	47Ω	6.5Ω	7Ω	†8700Ω	†8700Ω	0Ω		
V4	3BZ6	240K	47Ω	7Ω	7.5Ω	†8700Ω	†8700Ω	0Ω		
V5	3CB6	.1Ω	120Ω	7.5Ω	8.5Ω	†8200Ω	†8200Ω	0Ω		
V6	6AW8A	3900Ω	• 780K	†80K	8.5Ω	10Ω	• 90Ω	3900Ω	†10K	†5000Ω
V7	6CG7	• ‡2.7Meg	• 850K	0Ω	13.5Ω	12Ω	1Meg	†60K	†3900Ω	0Ω
V8	3AU6	2.5Ω	0Ω	10Ω	10.5Ω	†11K	†130K	150Ω		
V9	3AL5	INF	INF	3.5Ω	4.5Ω	12K	0Ω	0Ω		
V10	7AU7	†270K	10Meg	0Ω	3.5Ω	3.5Ω	22K	370K	170K	2.5Ω
V11	5AQ5	470K	330Ω	10.5Ω	11.5Ω	†900Ω	†470Ω	470K		
V12	7AU7	†2.2Meg	1.8Meg	0Ω	12Ω	12Ω	†32K	22K	2200Ω	11.5Ω
V13	12W6GT	NC	15.5Ω	†700Ω	†10K	•1.6Meg	NC	13.5Ω	0Ω	
V14	6CG7	†100K	• 90K	1200Ω	1.5Ω	0Ω	†12K	5Meg	1200Ω	0Ω
V15	12DQ6A	TP	18Ω	TP	†8200Ω	• 1.1Meg	NC	15.5Ω	0Ω	TOP CAP ‡65Ω
V16	19AU4	NC	NC	¶	NC	†9Ω	NC	196Ω	200Ω	
V17	3A2	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡210Ω
V18	17BZP4	2.5Ω	78K	‡1Meg	‡1Meg	‡1Meg	NC	• 300K	1.5Ω	

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

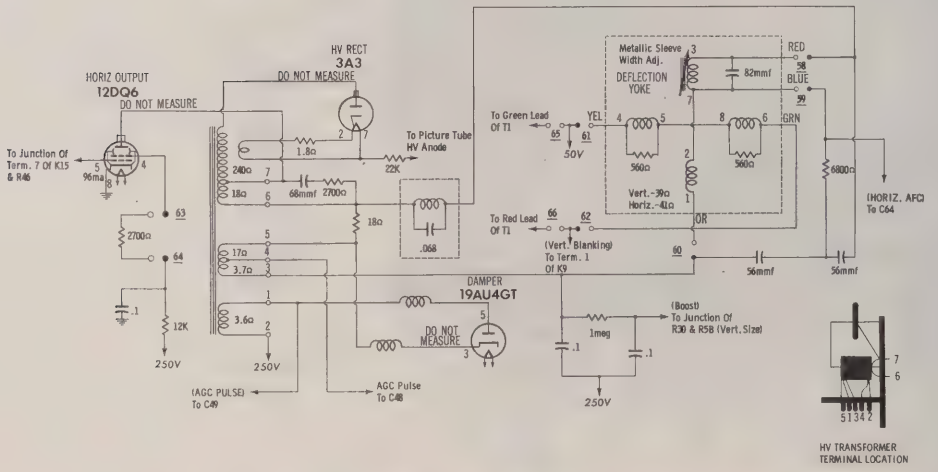
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 250V SOURCE.

‡ MEASURED FROM PIN 3 OF V19.

NC NO CONNECTION.

TP TIE POINT.

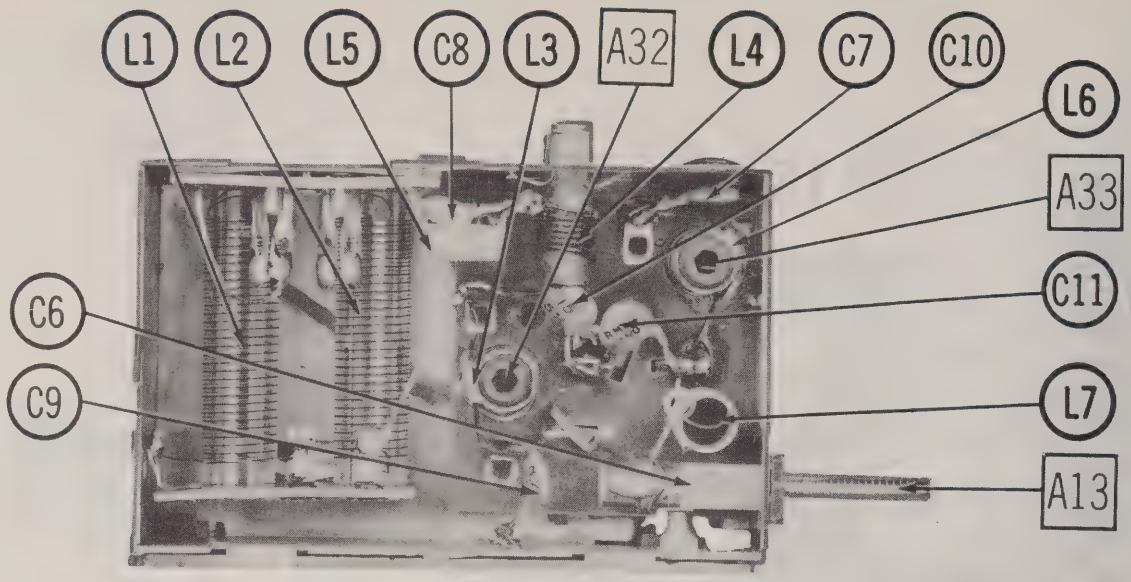


Horiz. Output, HV Transformer & Yoke Circuit Used In Chassis TS-428 & TS-428Y

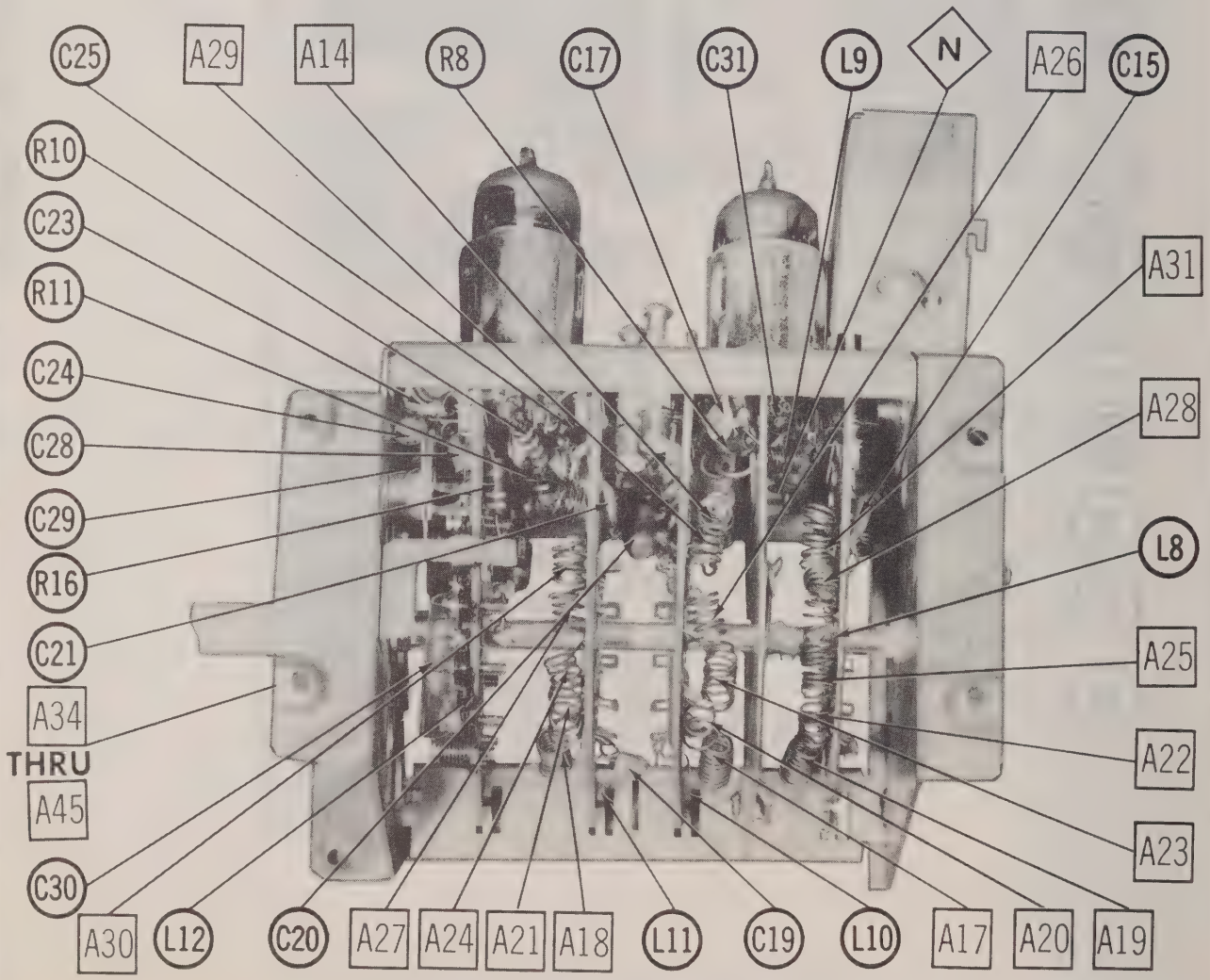
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE SWEEP CIRCUIT

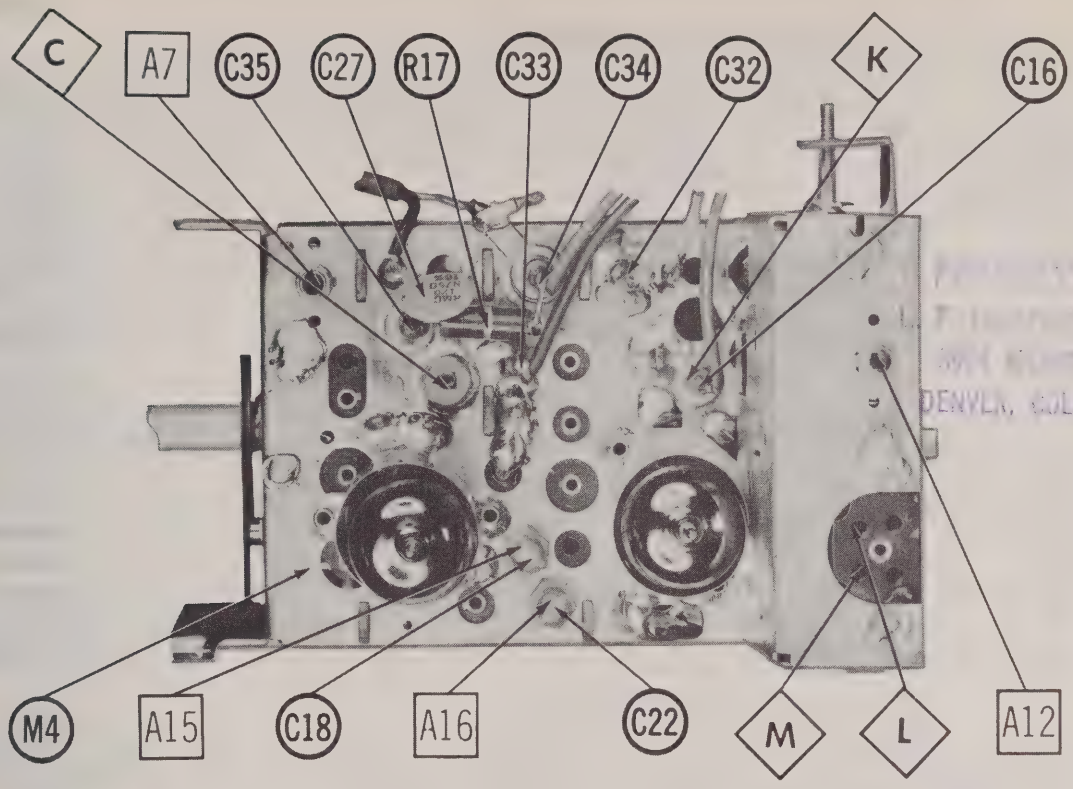
CHASSIS TOP VIEW



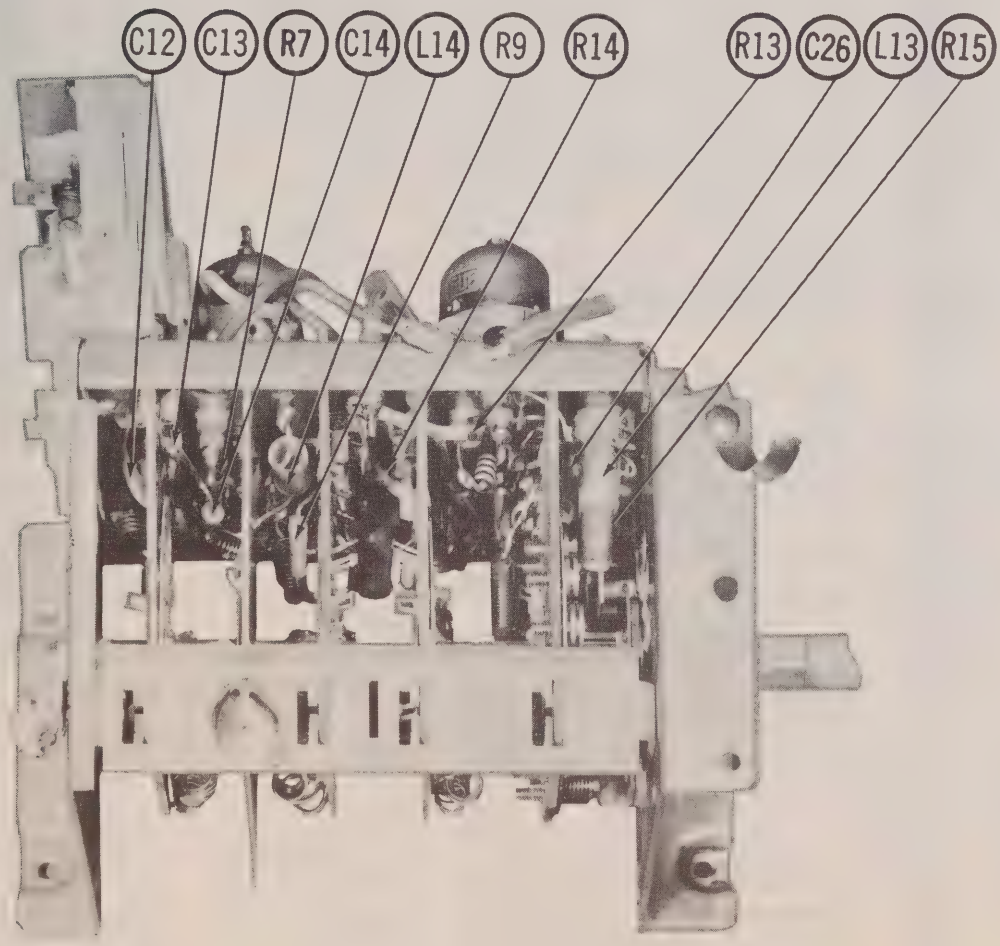
RF TUNER-REAR VIEW



RF TUNER-RIGHT SIDE



RF TUNER-TOP VIEW



RF TUNER-LEFT SIDE

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	4HU8	
V2	Mixer- Osc.	5U8	
V3	1st Video IF Amp	3BZ6	
V4	2nd Video IF Amp	3BZ6	
V5	3rd Video IF Amp	3CB6	
V6	Video Output-Sound Inv	6AW8A	
V7	AGC Keying-Vert. Mult	6CG7	
V8	Sound IF Amp.	3AU6	
V9	Ratio Det	3AL5	
V10	AF Amp -Horiz. AFC	7AU7	
V11	Audio Output	5AQ5	
V12	Sync Sep. -Sync Phase Inv	7AU7	
V13	Vert. Mult.-Vert. Output	12W6GT	
V14	Horiz. Mult.	6CG7	
V15	Horiz. Output	12BQ6	
V16	Damper	19AU4	
V17	HV Rectifier	3A2	Note 1

Note 1. Ch. TS-428 used a 3A3 in this application.

PICTURE TUBE

ITEM No	REPLACEMENT DATA: MOTOROLA PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	NOTES
V19	17BP24 / 17CP24 / 17DP24		17BP24 ① / 17BP24 ②	① Silver screen "85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: MOTOROLA PART No	AEROVOX PART No	CORNELL DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No	NOTES
C1	40	150	23VT38832	AFH31-23-01	BR1501S		TD-150-150	MT-15150	R2394 * R2494 *	
C2A	450	300	23VT43544	AFH33-26-50						
B	400	300								
C	30	300								
C3	2	10	23KT43442	PR350V2	BBR1-50	TT12K2	TD-2-25	MT-0502	TVA-1201 R2429 *	
C4A	10	300	23VT43543	AFH31-104-50						
B	10	50								
C	20	25								
C5A	40	300	23VT43567	AFH31-31-03			TDLD-36	MTD-4510	TVL-3585	
B	40	300								

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: MOTOROLA PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C6	5-8		30A743930							
C7	8	2	21R125856							N750 5%
C9	5		21R125928	N750-8I 5	TCN-5				5TCUB-V5	N750 5%
C9	6 2		21R125958							N750 5%
C10	15		21R125929		TCN-15		TCT-15		5TCU-Q15	N750 5%
C11	15		21R125929		TCN-15		TCT-15		5TCU-Q15	N750 5%
C12	22		21R124554	NPO-81 22	TCZ-22	C10QS2C	TCO-22		5TCU-Q22	NPO 5%
C13	8 2		21R125956							N750 5% ①
C14	2.5		21R115950		EF-001					
C15	1000		21R115388		BPD-001	DD-102	BYA5DI	ED-1000	DC5I	5HK-DI
C16	1000		21A739267		EF-001	MFT-1000				503C-DI
C17	1000		21R115388		BPD-001	DD-102	BYA5DI	ED-1000	DC5I	5HK-DI
C18	5-3		21K735985		038-3	3U18-D		CT565A		
C19	1 5		21R115959		NPO-81 1.5	TCZ-1R5	CTA5V15C	TCO-1.5	5TCCD-V15	
C20	100		21R120577		N750-8I 100	TCN-100	CTA5T1C	TCT-100	5TCU-T1	N750
C21	22		21R134554			TCZ-22		TCO-22	5TCC-Q22	NPO 5% ①
C22	5-3		21K735985			038-3		CT565A		
C23	1 0		21R114071							N1500
C24	2.7		21R125899							NPO
C25A	800		21R400943	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
B	800			BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C26	1000		21R115386		BPD-001	DD-102	BYA5DI	ED-1000	DC5I	5HK-DI
C27	120		21R115730		N750-8I 120	TCN-120	C10T12C	TCT-120		N750 10%
C28	10		21R125898		NPO-81 10	TCZ-10	C10QC	TCO-10	ZT-541	5TCC-Q	NPO 10% N750 5% N1500
C29	10		21R400063							
C30	1 0		21R134553							
C31A	800		21R400945	BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
B	800			BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C32	1000		21R120572	EF-001	MFT-1000				503C-DI	
C33	1000		21R120572	EF-001	MFT-1000				503C-DI	
C34	1000		21A739930	EF-001	MFT-1000				503C-DI	
C35	1000		21A739930	EF-001	MFT-1000				EF-001	
C36	5000	1400	21R127488	DAC-9		DD30-502	HV5ED5	HD15-4700	GEM-1635	MD-D5
C37	100	1500	21R127107				BC2P47			SE5-P47
C38	1000		21R124469	BPD-001	DD-103	BYA5DI	ED-1000	DC5I	5HK-DI	
C39	3.9		21R124550			C10V4C				NPO
C40	047	400	23R124191			BC5B47J		ACE5147	4SE-S47	
C41	68		21R124467							N470 10%
C42	10000		21R462729	BPD-01	DD-103	BYA5S1	ED-01	DC5II	5HK-S10	
C43	22		21R120539							N150 10%
C44	1	400	23R124681			BC6P1J		ACE401	4SE-P10	
C45	10000	1400	21R125905	DAC-27		HV1ED5		GEM-1651	BL-S10	
C46	10000		21R553471	BPD-01	DD-103	BYA5S1	ED-01	DC5II	5HK-S1	
C47	03	300	21R122236			BC5S3J			2SE-S33	
C48	6.8		21R744415	NPO-DI 6.8	TCZ-6R8	C10V6C	TCO-6.8	ZT-5568	5TCCB-V68	NPO 10%
C49	470	2000	21R125903	HVD-30-470	DD30-471	HV3E07471	HD5-470	DC30547	30QA-T47	
C50	6.8		21R124609	NPO-81 6.8	TCZ-6R8	C10V6C	TCO-6.8	ZT-5568	5TCCD-V68	
C51	27		21R127523		TCN-27	C10Q2TU	TCT-27			N750
C52	470		21R125477	BPD-00047		DD-471	BYA1D747	ED-470	UC-5547	5GA-T47
C53	5000		21K833332	BPD-005		DD-503	BYA1D5	ED-005	DC935	5HK-D5
C54	220			BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	③
C55	10000		21R553471	BPD-01	DD-103	BYA5S1	ED-01	DC5II	5HK-S1	
C56	10000		21R553471	BPD-01	DD-103	BYA5S1	ED-01	DC5II	5HK-S1	
C57	047	400	23R124572			BC6S47J		ACE6147	4SE-S47	
C58	.04	600	23R125706							
C59	05	600	23R125139			BC6S47J		ACE615	6SE-S47	
C60	05	600	23R120945			BC6S47J		ACE615	6SE-S47	
C61	02	400	23R125962			BC5S2J		ACE612	4SE-S22	
C62	2000	2000	21R125691							10%
C63	10000		21R553471	BPD-01	DD-103	BYA5S1	ED-01	DC5II	5HK-S1	
C64	1000	2000	21R125694	HVD-30-1000	DD30-102	HV3B20D	HD3-1000	DC30201	20GA-D1	10%
C65	.0033	600	23R127598							
C66	680		21R743440	1407-00068	D6-681	1W5T68	ED-680	UC-5368	1FM-368	
C67	220		21R743441	1408-00022	D6-221	5W5T22	ED-220	UC-5322	1FM-322	
C68	1	400	23R124681			BC6P1J		ACE401	6SE-P10	
C69	470		21R 40121	BPD-00047	DD-471	BYA1D747	ED-470	UC-5347	5GA-T47	③
C70	100	4000	21R127549							10% ③
C71	.1	800	23R126533			BC6P1J		ACE601	6SE-P10	
C72	.1	600	23R126533			BC6P1J		ACE601	6SE-P10	

CAPACITORS (cont)

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: MOTOROLA PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL-DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C73	91	2000	21A745631							⑤
C74	180		21R124685			TCN-180	CTA5T18U	TCT-180		N750
C75	25	600	21K124577				DC5F23J		AUE6022	
C76	5000	2000	21R124475			DD30-502	HV3D05		CFM-3025	20HKD-D5
C77	1000		21R124469	BPD-001	DD-102	BYA6DI	ED-1000	DC52I	5HK-DI	
C78	1000		21R124469	BPD-001	DD-102	BYA6DI	FD-1000	DC52I	5HK-DI	
C79	1000		21R124469	BPD-001	DD-102	BYA6DI	FD-1000	DC52I	5HK-DI	
C80	1000		21R124469	BPD-001	DD-102	BYA6DI	FD-1000	DC52I	5HK-DI	
C81	1000		21R124469	BPD-001	DD-102	BYA5DI	FD-1000	DC52I	5HK-DI	
C82	1500		21R124470	BPD-0015	DD-152	BYA10D15	FD-1500	DC5215	5HK-D15	

① In Tuner TT-95Y this is a 8 6MMF (Part #21R124606).
② In Tuner TT-95Y this is a 37MMF (Part #21R722050)
③ Not used in some versions.
④ Some versions use a 1320MMF @ 4000V in this application (Part #21R125979). Not used in Ch. TS-428
⑤ A 624MFF @ 2000V (Part #21R130150) used in Ch. TS-428

CONTROLS

ITEM No	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: MOTOROLA PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R1A	250Ω	1	18C743849				U1U50	Contrast - Note 1
B	1Meg						Not Req	Volume
C	Switch						Not Req.	
R2A	1Meg	1	18K743891	B-78	A47-31eg-8	QU-139	TA28L	Vert. Hold
B	Shaft			Not Req	KSB-3	Not Req.	Not Req	
R3A	100K	1	18K744119	B-60	A47-100K-8	QU-136	TA15L	Brightness
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.	
R4A	100K	1	18K744119	B-60	A47-100K-S	QU-138	TA15L	Horiz Hold
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.	
R5A	2Meg	1	18K743787					Vert. Lin.
B	5Meg							Vert. Size with 1Meg stop
R6	2Meg		18K743956					AGC - Note 2

Note 1. Alternate part #18C744743 used in Ch. TS-428.
Note 2. Alternate part #18C743956 used in Ch. TS-428.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	WATT	MOTOROLA PART No	NOTES
R7	22K		6R6036	
R8	100K		6R6076	
R9	470Ω		6R3949	
R10	4700Ω		6R6039	
R11	39K		6R6487	
R12	18K		6K123846	
R13	15K		6R219	
R14	270K		6R611	
R15	18K		6R316	
R16	3300Ω		6R536	
R17	330Ω	1	6K123833	
R18	2.2Meg		6R3927	
R19	1500Ω	2	6K3056	
R20	330Ω	3	17K733833	
R21	470Ω		6R3949	Note 1
R22	5600Ω	3	17K733825	
R23	8200Ω	3	17K733823	
R24	3900Ω		6R6059	
R25	50000	10	17K743850	
R26	10K	2	6K123807	
R27	150		6R3934	
R28	220K		6R6407	
R29	100K		6R6031	

ITEM No.	RATING: OHMS	WATT	MOTOROLA PART No	NOTES
R30	33K		6R6018	
R31	39000			Note 2
R33	10000			Note 3
R33	27000		6R6577	
R34	10Meg		6R5033	
R35	470K		6R6414	
R36	470K		6R6377	
R37	470Ω	1	6R5180	
R38	330Ω	1	6R6254	
R39	680Ω		6R3921	Note 4
R40	330K	1	6K125783	
R41	10K	2	6R6209	
R42	10K	2	6R5732	
R43	220Ω		6K127099	Note 5
R44	Note 6			Note 6
R45	330Ω		6K127099	Note 5
R46	1Meg		6R6064	
R47	56000Ω	2	6K123581	Note 7
R48	1Meg		6R6048	
R49	33Ω	2	6K488043	Note 8
R50	8300		6K127334	Note 9
R51	Note 10		6B738820	Note 10
R52	7 5Ω		17K735862	

Note 1. In Ch. TS-428 this is a part of a component combination (Part #5IB744512)
Note 2. Some versions use a 2200Ω or 3300Ω in this application
Note 3. Some versions use a 10K (Part #6R6430) in this application.
Note 4. Not used in Ch. TS-428.
Note 5. A 560Ω (part #6K123802) used in Ch. TS-428.
Note 6. 3. 8Ω Coil, 2. 0Ω Hot. Not used in Ch. TS-428.
Note 7. Some versions use a 82000, 2W (Part #6R5738) in this application.
Note 8. An 18Ω (part #6K122947) used in Ch. TS-428.
Note 9. In some versions, C69 is not used and a 8000Ω, 5W (Part #17K745058) is used in this application.
Not used in chassis coded A-03 and higher.
Note 10. 250Ω Coil, 30Ω Hot.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: MOTOROLA PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordorson PART No	Triad PART No	NOTES
T1	Vert. Output	25C742825 ①							
	Vert. Osc. (27. 6MH)	25K745691 ②	21900 ③	A-2921	V316 ④	A-8446	26573 ⑤	A-16X	
T2A	Yoke-Horiz.(27. 6MH)	24K744205 ⑥		MDF-107					
	(10°)-Vert. (42MH)	⑦							
	Alternate Yoke	24D742833 ⑧							
A	Yoke-Horiz. (34MH)	24K745101 ⑦		MDF-108					
B	(90°)-Vert. (42MH)								
T3	Horiz. Output	24K745703 ⑨		HVO-184					
	Primary Coil	24K745703							
	Secondary Coil	24C744385							
	Alt. Horiz. Output	24C744406 ⑩							
	Primary Coil	24C744287							
	Secondary Coil	24C744206							
	Horiz. Output	24C745536 ⑩		HVO-185					
	Primary Coil	24K745553							
	Secondary Coil	24K745531							
T4	Width Coil	24C744936 ⑪							
B	Parallel Coil(6-8 5MH)								
B	Series Coil (3-6. 5MH)								
A	Alt. Width Coil	24K745704 ⑪							

① Used in Ch. TS-428
② Used in Ch. TS-428.
③ Use T to 1 burst ratio.
④ Cut and tape blanking lead.
⑤ Drill new mounting hole(s)
⑥ Used in Ch. TS-428. Includes leads and plug. Does not include rear cover and centering device (Part #15C742818)
⑦ Used in Ch. TS-428. Includes leads and plug. Does not include rear cover and centering device (Part #48A743401).
⑧ Used in Ch. TS-428 coded A-02 and higher.
⑨ Used in Ch. TS-428. In chassis coded A-02-1, a red dot is included and should be replaced with an equivalent of part #24K745702. Includes HV rectifier socket.
⑩ Includes HV rectifier socket. Used in Ch. TS-428.
⑪ Used in Ch. TS-428 coded A-02-1 and higher.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE: PRI	SEC	REPLACEMENT DATA: MOTOROLA PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordorson PART No	Triad PART No	NOTES
T5	5000Ω	3-4Ω	25C743845 ①	21107 ②	A-2930 ②	A-3877 ②	26851 ③	S-51X ②	① Alternate part #25B743845. ② Fabricate mounting.

SPEAKER

ITEM No	TYPE: SIZE	FIELD	V C IMP	REPLACEMENT DATA: MOTOROLA PART No	QUAM PART No	NOTES
SP1	4	PM	3-4Ω	50D743829 ①	4A07	① Used in Model 17P1-1
	4"	PM	3-4Ω	50K743040 ②		② Used in Models 17P1-1, -2, 17P3-1, 17YP1-1A, -2A, 17YP3-1A
	4"	PM	3-4Ω	50K745428 ③		③ Used in Models 17T30CH, 17T31GP, 17T30CHA, 17T31GPA

COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	NOTES
L1	Ant. Matching Coil	24C744300	
L2	Ant. Matching Coil	24C744300	
L3	IF Trap Coil	1B743982	
L4	IF Trap Coil	1B743930	
L5	IF Trap Coil	24K745530	
L6	IF Trap Coil	1B743982	
L7	IF Trap Coil	24K745347	
L8	Ant. Coils	1V743898	Channel 2-13, wafer assy. includes C13, C15, C16
L9	Neut. Coil	24A739397	

ITEM No.	USE	MOTOROLA PART No.	NOTES
L10	RF Coils	1V743647	Channel 2-13, wafer assy includes C19, C20, R9
L11	Mixer Grid Coils	1V743888	Channel 2-13, wafer assy includes C2i
L12	Osc. Coils	1V745151	Channel 2-13, wafer assy includes C30, C33, R16
L13	Mixer Plate Coil	24B760435	
L14	Pil. Choke	24K745575	

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L15	1st. Video IF	24K744323				
L16	2nd. Video IF	24B740285				Includes 41. 25MC Trap
L17	3rd. Video IF	24K745317				Includes 47. 25MC Trap
L18	4th. Video IF	24K744416				Includes coils, cage and M3
L19	RF Choke	24K740416	19-1005	BC-566	4612	10 Microhenries
L20	Shunt Peaking Coil	24K745113	19-4301	TV-197	6154	300 Microhenries
L21	Series Peaking Coil	24K745114	19-3503 *	TV-182 *	6177 *	8. 5Microhenries, wound on 56000 resistor - Note 1
L22A	4. 5MC Trap	24B740282				
B	Sound IF					
L23	Shunt Peaking Coil	24K745121		TV-302	6136	430 Microhenries
L24	Shunt Peaking Coil	24K745110				3000 Microhenries, wound on 4700Ω resistor
L25	Series Peaking Coil	24K736803	19-3350 ▲	TV-184 ▲	6156 ▲	240 Microhenries, wound on 10K resistor
L26	Ratio Det.	24K745163				Tertiary winding -1. 5Ω - Note 2
L27	Resonant Choke	24A742732				7. 8 Microhenries
L28	RF Choke	24K791446	19-1005	BC-566	6612	10 Microhenries. IRC part #CL-1
L29	RF Choke	24K791446	19-1006	BC-566	4612	10 Microhenries. IRC part #CL-1
L30	RF Choke	1V738800				5. 5 Microhenries, wound on .068MFD Cap. - Note 3
L31	Line Choke	24B742200				9MC
L32	Line Choke	24K745199				4. 5MC
L33	Line Choke	24K740867				1 4 Microhenries
L34	Pil Choke	24K743552	19-1001	BC-562	4604	1 4 Microhenries
L35	Pil Choke	24K743552	19-1001	BC-562	4604	1 4 Microhenries
L36	Pil Choke	24K743552	19-1001	BC-562	4604	1 4 Microhenries

Note 1. Alternate part #24K745170, 96 microhenries wound on 15K resistor used in Ch TS-428
Note 2. Alternate part #24B740283 used in Ch. TS-428.
Note 3. Alternate part #1K745431 used in Ch. TS-428.
* Parallel with 5800Ω resistor.
▲ Parallel with 10K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI.	SEC.	REPLACEMENT DATA: MOTOROLA PART No	Meissner PART No	Merit PART No	Miller PART No	Ram PART No	Thordorson PART No	NOTES
L37	33Ω		24B738797						

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT / 200 MA.)	REPLACEMENT DATA: MOTOROLA PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordorson PART No	Triad PART No
L38	310A	44Ω	1 HY	25K743041				26C44	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA	
K1	Ant. Isolation	470MMF @ 1500V, 2-1Meg	5IB740235	Centralab	RC-471
K2	Ant. Isolation	470MMF @ 1500V, 3-1Meg	5IB740235	Centralab Sprague	RC-471 R-9177
K3	1st. IF Grid	470MMF, 470Ω, 33K, 47Ω	5IB738930	Centralab Sprague	RC-471 R-9177
K4	1st IF Screen	470MMF, 4700MMF, 10000MMF, 470Ω, 2-2Meg	5IB738895 ①	Sprague	R-9187
K5	2nd IF Grid	470MMF, 33K, 47Ω	5IB738902 ②	Sprague	R-9188
K6	2nd IF Screen	470MMF, 5000MMF, 47Ω	5IB738938	Sprague	R-9189
K7	3rd IF Grid	1000MMF, 33K, 100Ω	5IB738703		
K8	AGC	1000MMF, 330K, 1Meg, 820K, 2. 2Meg, 33K, 10K, 68K	5IB743957	Erie	709-07
K9	Vert. Blanking	5000MMF, 10000MMF, 10K, 68K	5IB743518	Sprague	R-9190
K10	Sound IF	5000MMF, 5000MMF, 5000MMF, 1000MMF, 120K, 330Ω, 150Ω	5IB745043 ①		

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS (cont)

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA	
K11	Ratio Detector	1000MMF, 1000MMF, 5000MMF, 100MMF, 12K, 33K, 220Ω	51B745044	Sprague	R-9191
K12	Sync	4700MMF, 220MMF, 50MMF 470MMF, 1.5Meg, 270K, 2.2Meg, 27K, 2200Ω	51B743520		
K13	Horiz. AFC	1000MMF, 3300MMF, 100K, 100K, 150K, 22K, 2200Ω, 22K, 1Meg	51B743517		
K14	Horiz. Mult.	1500MMF, 10000MMF, 100MMF, 8200Ω, 4.7Meg, 56K	51B743344		
K15	Horiz. Mult. Output	5000MMF, 2200Ω, 100K, 2.2Meg, 12K, 1200Ω	51B743345		
K16	Yoke Ringing	150MMF, 150MMF, 6800Ω	51B738888 ④	Sprague	R-9196
K17	Vert. Integrator	2000MMF, 3000MMF, 1000MMF, 180K, 47K, 220K	51B743519		
K18	Vertical	10000MMF, 12K, 18K, 10K, 1800Ω, 1Meg	51B743521	Erie	709-06

① Alternate part #51B744739 with values of 470MMF, 470MMF, 1500MMF, 470Ω, 2.2Meg used in Ch. TS-428.
② Alternate part #51B744512 with values of 470MMF, 33K, 47Ω, 470Ω used in Ch. TS-428.
③ Alternate part #51B745279 with values of 5000MMF, 5000MMF, 5000MMF, 1000MMF, 120K, 220Ω, 270Ω used in Ch. TS-428.
④ Ch. TS-428 uses individual components of 56MMF, 56MMF, 6800Ω in this application.

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	MOTOROLA PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.280A	48K125831 ①	1023A ①		RS350 ①	350A ①	① Selenium type.
M2	.280A	48K125831 ①	1023A ①		RS350 ①	350A ①	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	CBS PART No.	SYLVANIA PART No.	
M3		48C739300	1N60	1N60	Video Detector (Clip-in)

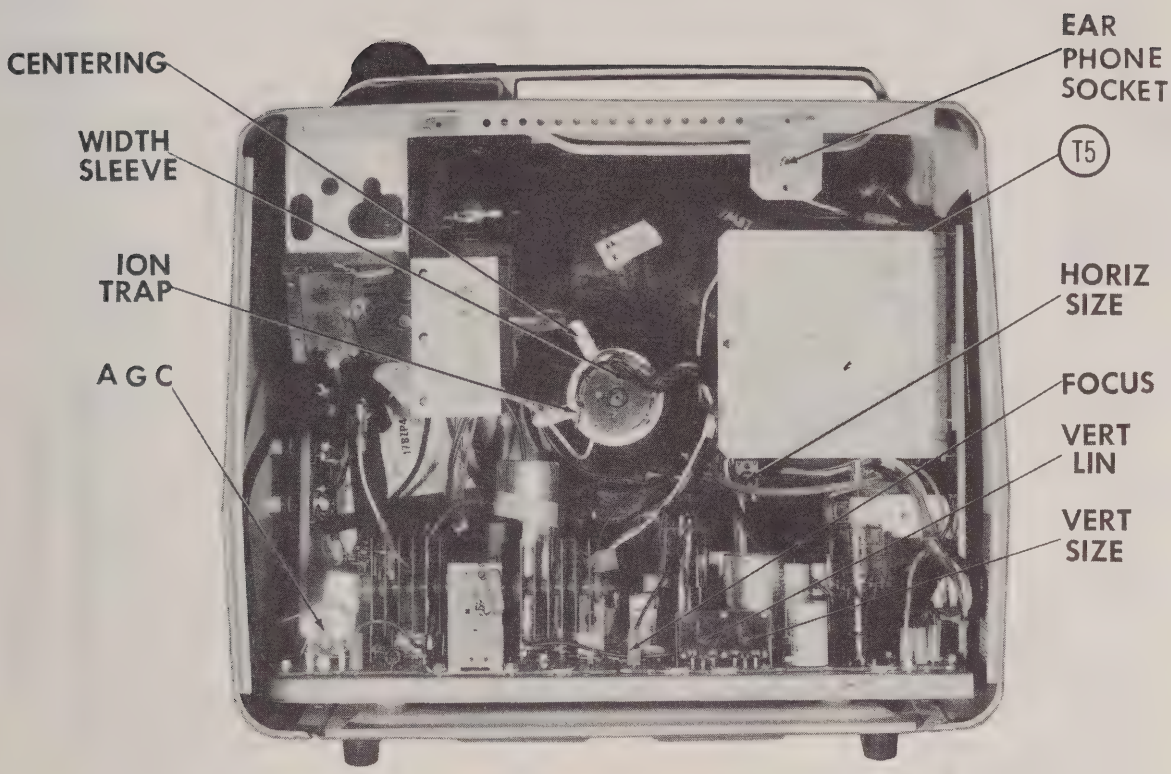
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Tuner		VHF (TT-95A) - Ch. TS-426
	Tuner	1V745309	VHF (TT-95) - Ch. TS-426
	Tuner	1V745598	VHF (TT-95Y) - Ch. TS-426Y
	Tuner	1V745668	VHF (TT-101) - Ch. TS-428
	Tuner	1V745669	VHF (TT-101Y) - Ch. TS-428Y
	Tuner		UHF (VTT-89) - Ch. TS-426Y, TS-428Y
M5	Width Sleeve		
M6	Centering Device	15C742818	Includes yoke rear cover - Ch. TS-426
	Centering Device	48A743407	Includes yoke rear cover - Ch. TS-428
M7	Ion Trap	59A745187	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	61D742776	
Bezel	13E742771	Models 17P1-1, Y17P1-1A
Bezel	13K742772	Models 17P1-2, Y17P1-2A
Bezel	13K742773	Models 17P2-1, Y17P2-1A
Bezel	13K744979	Models 17T30CH, 17T31GP, Y17T30CHA, Y17T31GPA
Knob	36K742870	VHF Channel Selector (Model 17P1-1, 17P1-2, 17P2-1)
Knob	36K741110	VHF Channel Selector (Models 17T30CH, 17T31GP)
Knob	36C742869	VHF Channel Selector (Models Y17P1-1A, Y17P1-2A, Y17P2-1)
Knob	36C738681	VHF Channel Selector (Models Y17T30CHA, Y17T31GPA)
Knob	36B742691	Contrast (Models 17P1-1, -2, 17P2-1, Y17P1-1A, -2A, Y17P2-1A)
Knob	36B743435	Contrast (Models 17T30CH, 17T31GP, Y17T30CHA, Y17T31GPA)
Knob	36B742688	Brightness (Models 17P1-1, -2, 17P2-1, Y12P1-1A, -2A, Y17P2-1A)
Knob	36C738680	Fine Tuning (Models 17T30CH, 17T31GP, Y17T30CHA, Y17T31GPA)
Knob	36C742871	Fine Tuning (Models 17P1-1, -2, 17P2-1, Y17P1-1A, -2A, Y17P2-1A
Knob	36K744940	Horiz., Vert., Brightness (Models 17T30CH, 17T31GP, Y17T30CHA, Y17T31GPA)
Knob	36B744035	Horiz. Hold (Models 17P1-1, -2, 17P2-1, Y17P1-1A, -2A, Y17P2-1A
Knob	36B743434	On-off-volume (Models 17T30CH, 17T31GP, Y17T30CHA, Y17T31GPA)
Knob	36B742692	On-off-volume (Models 17P1-1, -2, 17P2-1, Y17P1-1A, -2A, Y17P2-1A)
Knob	36B744034	Vert. Hold (Models 17P1-1, -2, 17P2-1, Y17P1-1A, -2A, Y17P2-1A)
Dial	34K743565	UHF (Models Y17T30CHA, Y17T31GPA)
Dial	34K743564	UHF (Models Y17P1-1A, -2A, Y17P2-1A)
Cabinet	16F742803	Models 17P1-1, Y17P1-1A
Cabinet	16K742916	Models 17P1-2, Y17P1-2A
Cabinet	16K742917	Models 17P2-1, Y17P2-1A
Cabinet	16E739967	Models 17T30CH, Y17T30CHA
Cabinet	16K745160	Models 17T31GP, Y17T31GPA



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern. Adjust the brightness and contrast controls for a normal picture.

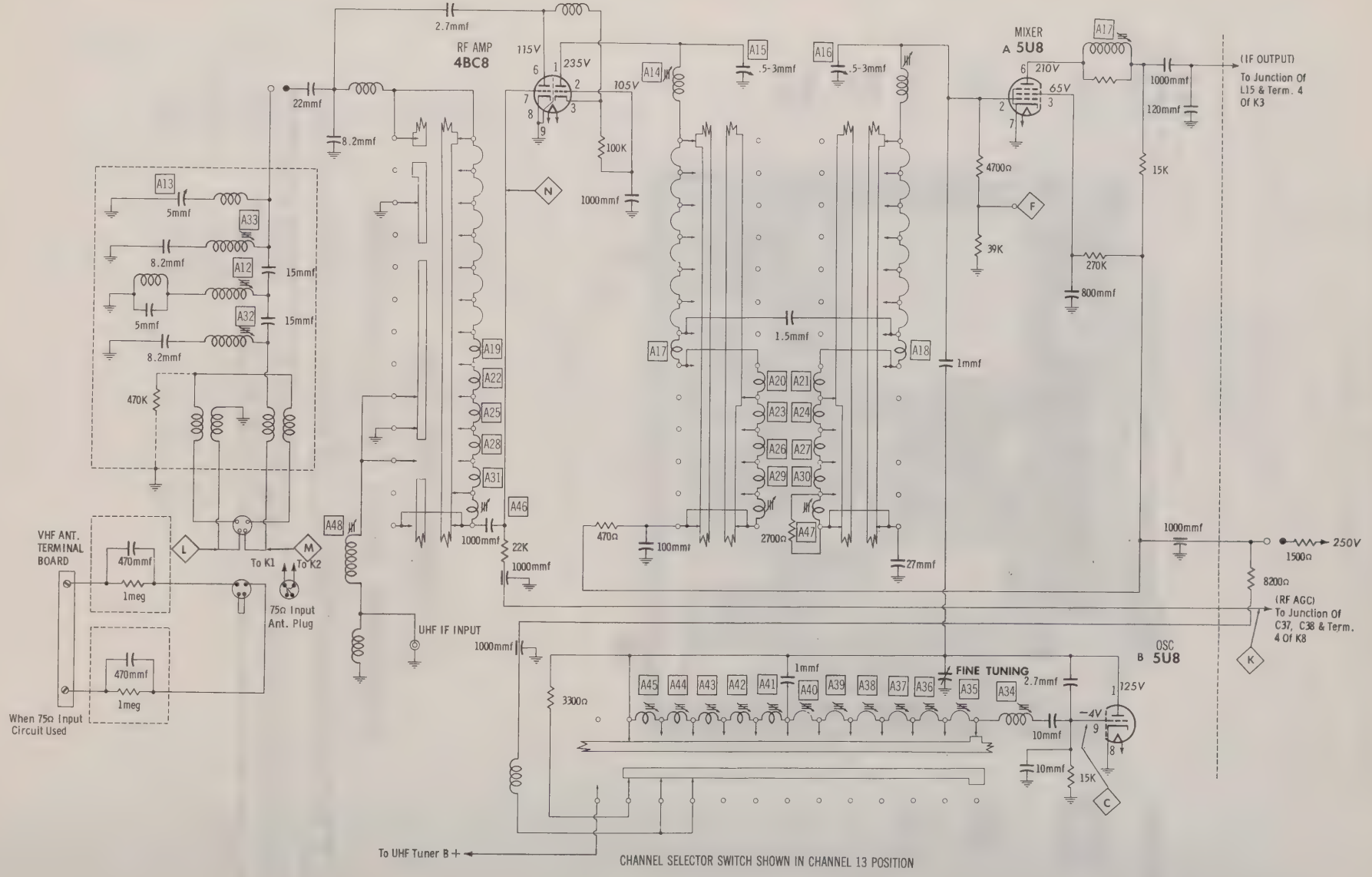
Short out the AFC voltage by connecting a clip lead from TP-9 to chassis. Connect a .1MFD, 400 volt capacitor from TP-10 to chassis.

Adjust horizontal hold to the point where the picture is almost stable horizontally.

Remove the capacitor from TP-10 and adjust the horizontal frequency slug (B1) to the point where the picture is almost stable horizontally.

Remove the clip lead from TP-9 and chassis. Adjust the horizontal hold control until the picture is synchronized horizontally.

Adjust the width slug (B2) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF Tuner TT-95Y (Part #1V745598) & TT-101Y
(Part #1V745669)

ALTERNATE TUNER SCHEMATIC

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

TRAV-LER MODELS 621-740, U, 621-750, U, 721-R400, U (Ch. 631-26, -46, 632-26, -46)

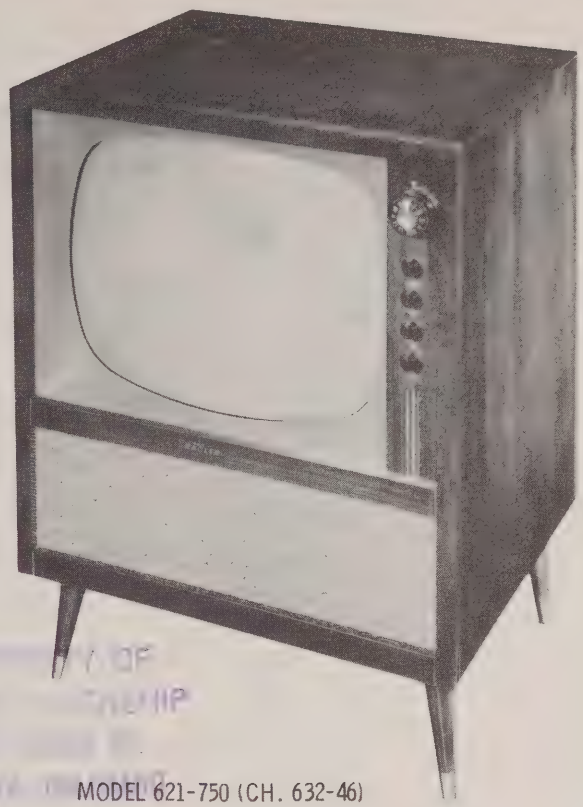
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the front and 1 from the back.
2. Remove 6 wood screws holding the rear cover. Remove the rear cover.
3. Remove 2 wood screws holding the antenna terminal board.
4. Remove the speaker leads, picture tube socket, yoke plug and HV lead.
5. Remove 1 metal screw holding the yoke assembly ground strap.
6. Remove 4 chassis bolts.
7. Remove the chassis.
8. Remove 6 bolts holding the picture tube mounting board.
9. Remove the picture tube mounting board.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.



MODEL 621-750 (CH. 632-46)

TRAV-LER MODELS 621-740, U, 621-750, U, 721-R400, U (Ch. 631-26, -46, 632-26, -46)

TRADE NAME	Trav-Ler	MODELS	CHASSIS
		621-740, 621-750, 721-R400	632-26, 632-46
		621-740U, 621-750U, 721-R400U	631-26, 631-46
MANUFACTURER	Trav-Ler Radio & Tele. Corp., 571 W. Jackson Blvd., Chicago 6, Illinois		
TYPE SET	Television Receiver		
TUBES	Sixteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 120 Watts, 1.1 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube and safety glass cleaning, it is necessary to remove the chassis. (See disassembly instructions).

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10, or 6 and 2. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

FUSE DEVICE

A 5Ω fusible resistor (R68) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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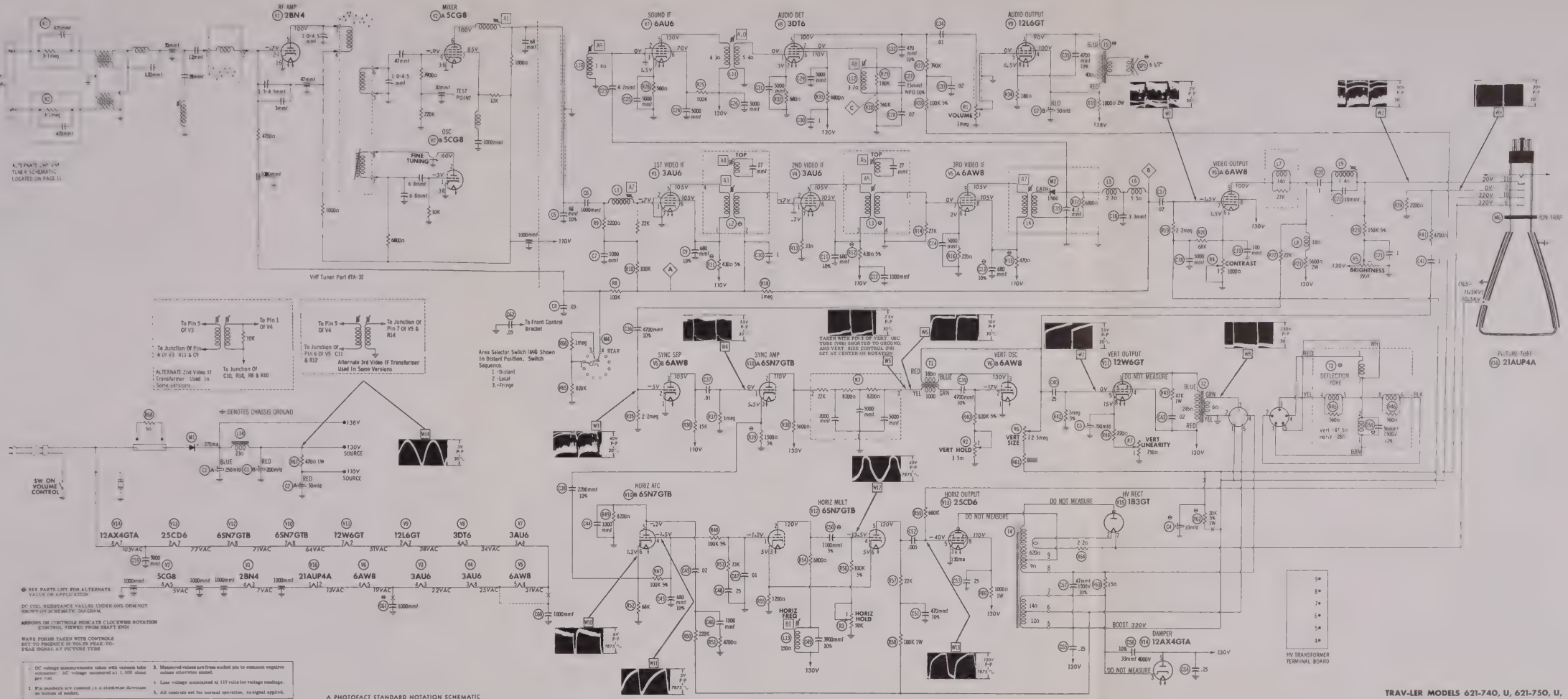
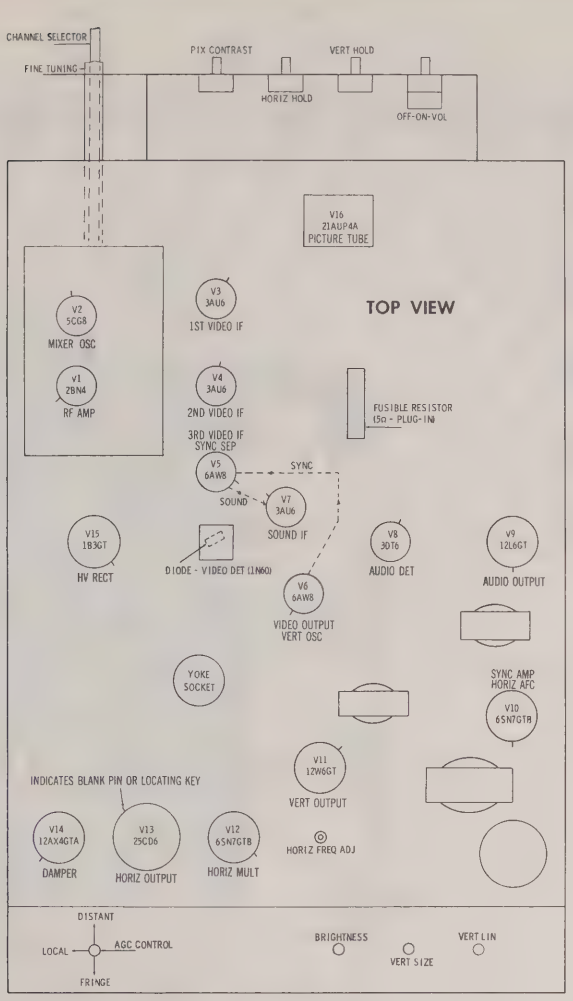

RF AMP V1 2BN4
MIXER V2A 5CG8
OSC V2B 5CG8
SOUND IF V7 6AU6
AUDIO DET V8 3DT6
AUDIO OUTPUT V9 12L6GT
1ST VIDEO IF V3 3AU6
2ND VIDEO IF V4 3AU6
3RD VIDEO IF V5 6AW8
VIDEO OUTPUT V6A 6AW8
SYNC SEP V6B 6AW8
SYNC AMP V10A 6SN7GTB
VERT OSC V6C 6AW8
VERT OUTPUT V11 12W6GT
HORIZ AFC V10B 6SN7GTB
HORIZ MULT V12 6SN7GTB
HORIZ OUTPUT V13 25CD6
HV RECT V15 1B3GT
DAMPER V14 12AX4GTA
PICTURE TUBE V16 21AUP4A
VHF Tuner Part #TA-32
ALTERNATE 2nd Video IF Transformer Used In Some versions
Alternate 3rd Video IF Transformer Used In Some Versions
Area Selector Switch (M4) Shown In Distant Position. Switch Sequence. 1 -Distant 2 -Local 3 -Fringe
DENOTES CHASSIS GROUND
SW ON VOLUME CONTROL
VOLUME
VERT HOLD
VERT SIZE
VERT LINEARITY
CONTRAST
BRIGHTNESS
HORIZ HOLD
HORIZ FREQ
ION TRAP
DEFLECTION YOKE
HV TRANSFORMER TERMINAL BOARD
12AX4GTA 25CD6 6SN7GTB 6SN7GTB 12W6GT 12L6GT 3DT6 3AU6
5CG8 2BN4 21AUP4A 6AW8 3AU6 3AU6 6AW8
DO NOT MEASURE
BOOST 320V
TAKEN WITH PIN 2 OF VERT. OSC TUBE (V6B) SHORTED TO GROUND, AND VERT. SIZE CONTROL (R61) SET AT CENTER OF ROTATION
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.
ARROWS OR CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction as bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TRAV-LER MODELS 621-740, U, 621-750, U, 721-R400, U (Ch. 631-26, -46, 632-26, -46)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

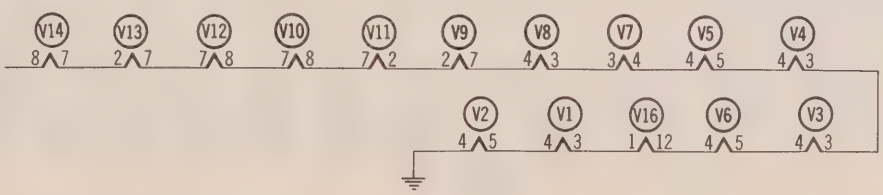
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R68), Rectifier (M1)**

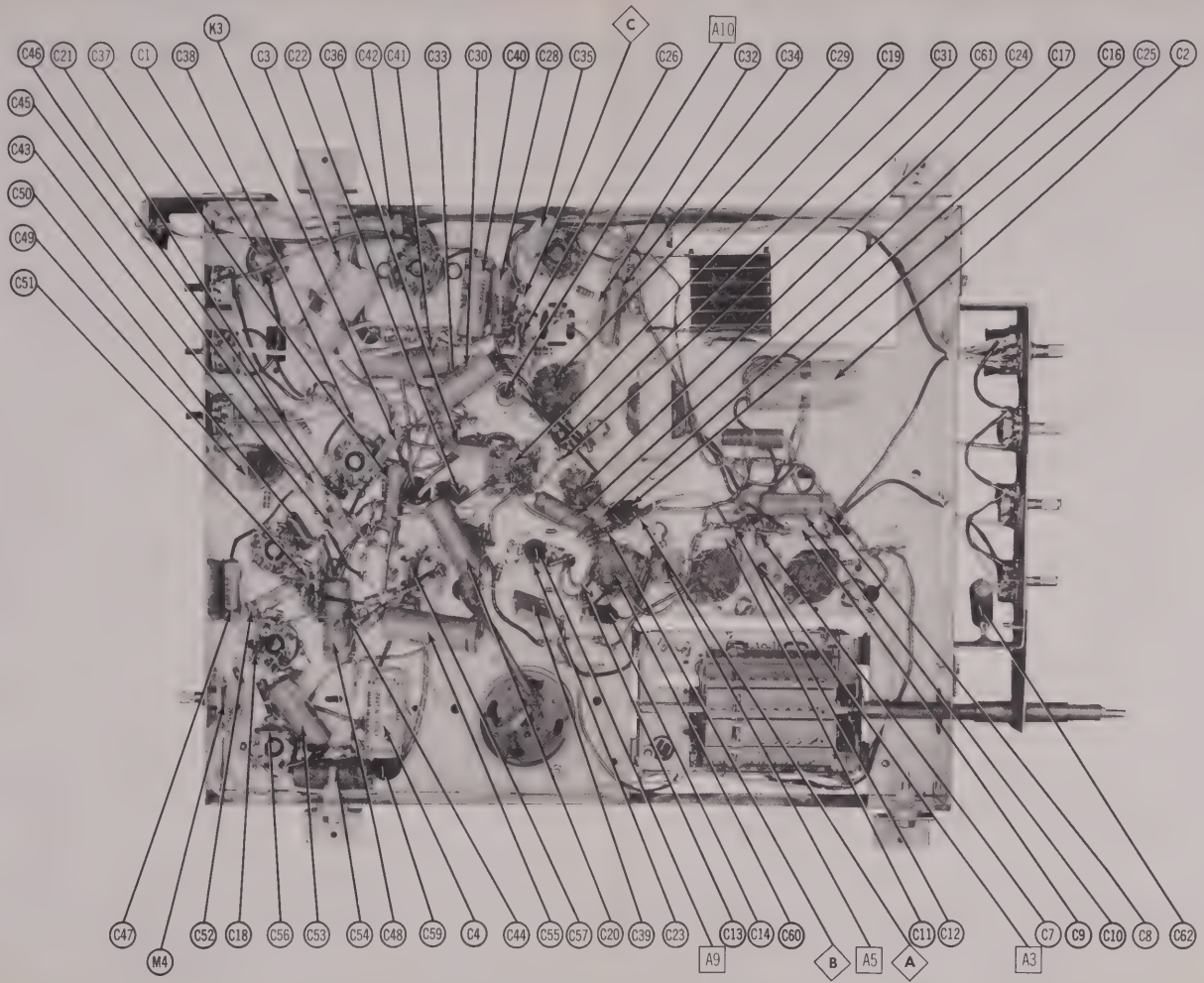
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M2)**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V16**
Has pic, no sound - **V7, V8, V9**

SYNC FAILURE
No vert. sync - **V5, V10**
No horiz. sync - **V5, V10**
No vert. or horiz. sync - **V5, V10**

SWEEP FAILURE
No raster, has sound - **V10, V12, V13, V14, V15, V16**
No vertical deflection - **V6, V11**
Poor vert. linearity or foldover - **V6, V11**
Poor horiz. linearity or foldover - **V12, V13, V14**
Narrow picture - **V12, V13, V14, M1**
Vert. off freq. - **V6**
Horiz. off freq. - **V12**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Set the contrast control fully counter clockwise.
Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the mixer-osc. tube (V2), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	44MC (10MC Swp)	41.25MC 45.75MC 47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to point (B). Low side to chassis.	A1, A2, A3, A4, A5, A6, A7	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. High is affected by A2 and A5, low side is affected by A1 and A3 and center frequency by A7. Adjust A4 to place 41.25 MC marker in trap notch and A6 to place 47.25MC marker in trap notch.

SOUND IF ALIGNMENT

1. Tune in a strong TV signal and adjust A8 for maximum undistorted sound. If two peaks occur during this adjustment, connect the DC probe of a VTVM to point (C) and common to chassis. Adjust to the peak that results in the highest deflection on the VTVM.
2. Reduce the signal strength (by disconnecting the antenna or connecting an attenuator in series with the antenna) until noise is heard in the sound.
3. Adjust A9 and A10 for maximum undistorted sound.
4. Reduce the signal strength even further and retouch A9 and A10 for maximum undistorted sound.
5. If necessary, repeat steps 1 thru 4.

VHF OSCILLATOR ALIGNMENT

Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

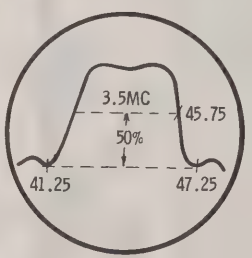
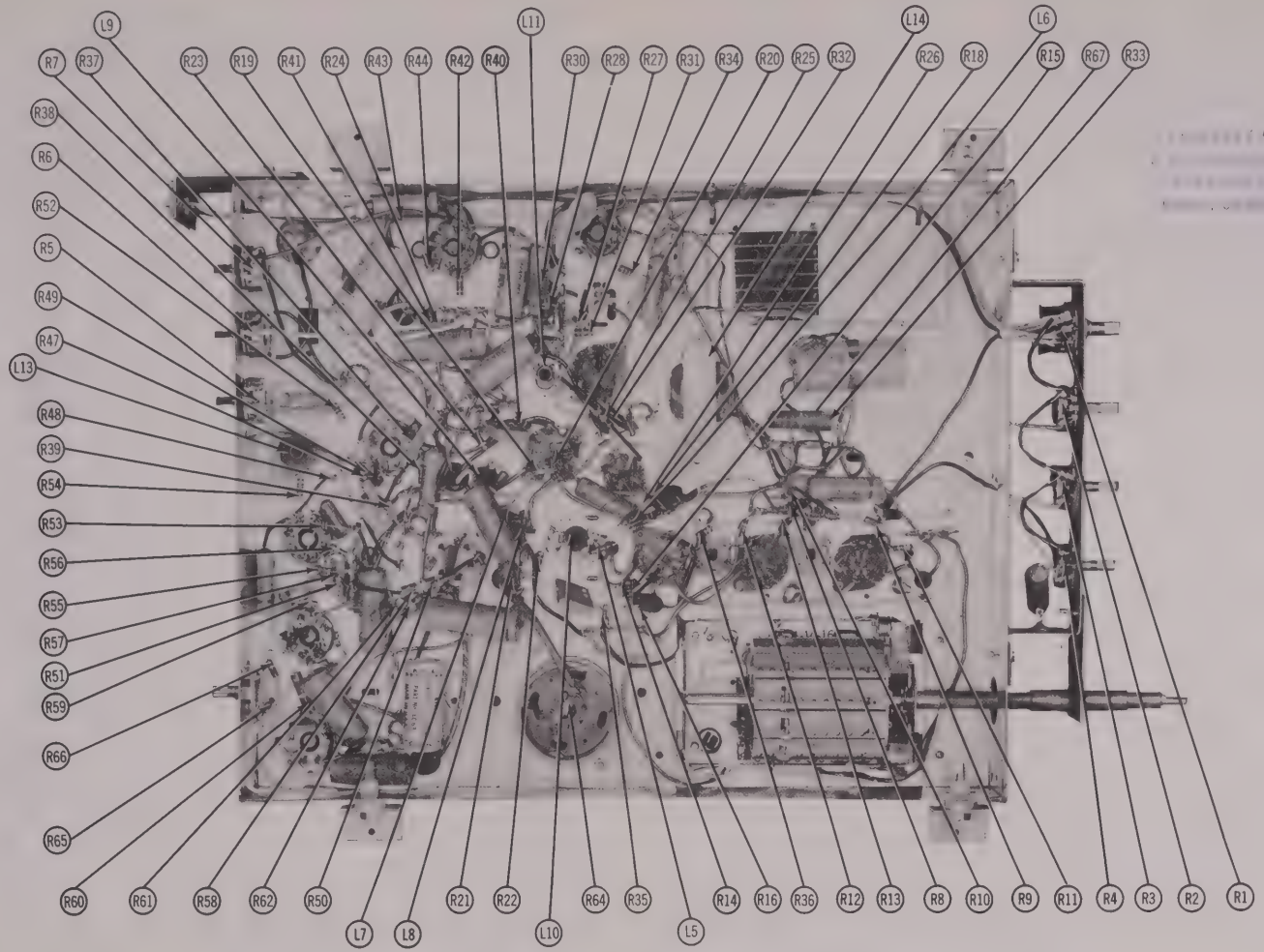


FIG. 1

CHASSIS TOP VIEW

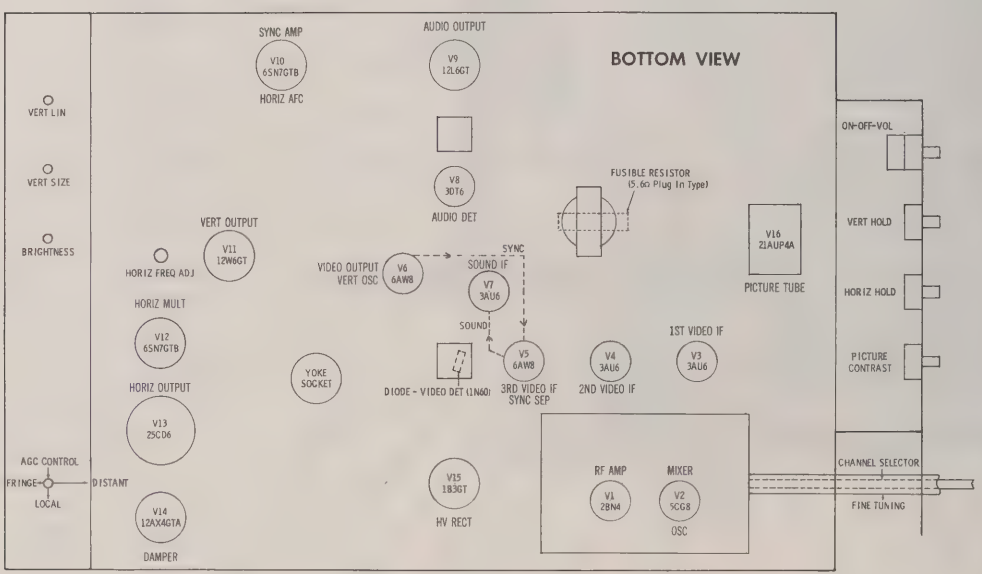


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

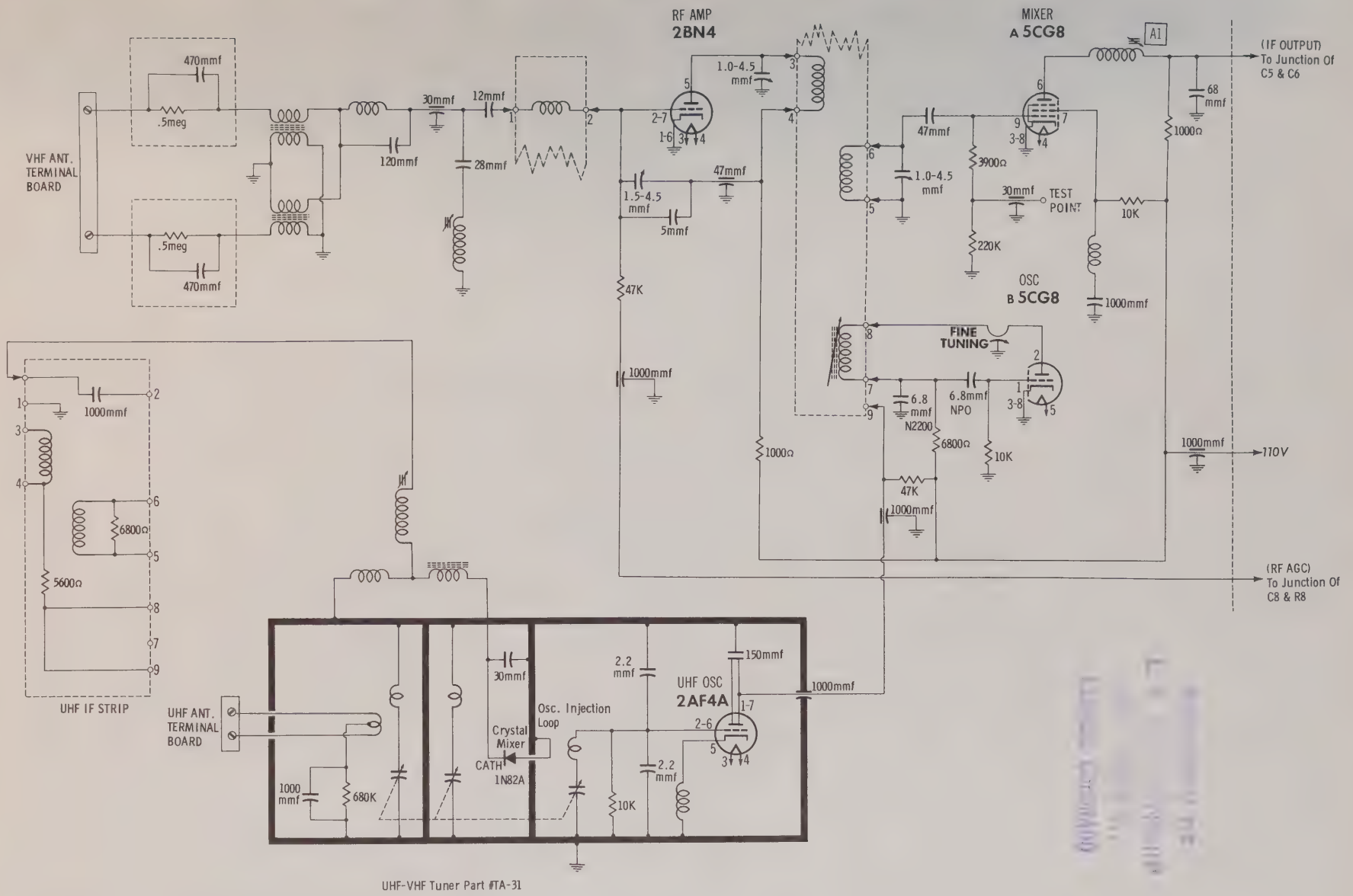
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2BN4	0Ω	550K	2Ω	1.5Ω	†1500Ω	0Ω	550K		
V2	5CG8	10K	†7300Ω	0Ω	0Ω	1.5Ω	†1500Ω	†10K	0Ω	220K
V3	3AU6	600K	0Ω	5.5Ω	4.5Ω	†900Ω	†900Ω	0Ω		
V4	3AU6	500K	0Ω	5.5Ω	6.5Ω	†900Ω	†900Ω	33Ω		
V5	6AW8	0Ω	2.2Meg	†15K	7.5Ω	6.5Ω	220Ω	.1Ω	†950Ω	†950Ω
V6	6AW8	0Ω	•1.4Meg	• ‡1.4Meg	3Ω	4.5Ω	• 270Ω	2.2Meg	†0Ω	†5600Ω
V7	3AU6	1.6Ω	0Ω	8.5Ω	7.5Ω	†4.3Ω	†100K	560Ω		
V8	3DT6	5.4Ω	680Ω	8.5Ω	9Ω	‡490K	†6800Ω	560K		
V9	12L6GT	NC	11Ω	††1400Ω	††1000Ω	0Ω	NC	9Ω	180Ω	
V10	6SN7GTB	1Meg	†5600Ω	1500Ω	170K	8200Ω	68K	15Ω	13.5Ω	
V11	12W6GT	TP	11Ω	†245Ω	†0Ω	1Meg	NC	13.5Ω	• 280Ω	
V12	6SN7GTB	270K	†6900Ω	1200Ω	• 115K	‡120K	1200Ω	16.5Ω	15Ω	
V13	25CD6	NC	22Ω	0Ω	NC	750K	TP	16.5Ω	†1000Ω	TOP CAP ‡24Ω
V14	12AX4GTA	NC	NC	¶500K	NC	†0Ω	NC	22Ω	25Ω	
V15	1B3GT	PINS		1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡645Ω
V16	21AUP4A	2Ω	2200Ω	PIN 6 ‡20K	PIN 10 ‡20K	PIN 11 • 170K	PIN 12 3Ω			

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM) DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 130V SOURCE.
†† MEASURED FROM 138V SOURCE.
‡ MEASURED FROM PIN 3 OF V14.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE TUNER SCHEMATIC

TRAV-LER MODELS 621-740, U, 621-750, U, 721-R400, U
(Ch. 631-26, -46, 632-26, -46)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	2DN4	
V2	Mixer-Osc	3USB	
V3	1st. Video IF Amp	3AL6	
V4	2nd. Video IF Amp	3AU8	
V5	3rd. Video IF Amp - Sync Sep.	6AW8	
V6	Video Output-Vert. Osc.	6AW8	
V7	Sound IF Amp	3AL6	
V8	Audio Det	3DT6	
V9	Audio Output	12AU6A	
V10	Sync Amp. -Horiz. AFC	6SN7GTB	
V11	Vert Output	12W6GT	
V12	Horiz Mult	6SN7GTB	
V13	Horiz Output	25CD6	
V14	Damper	12AX4GTA	
V15	HV Rectifier	1B3GT	

PICTURE TUBE

ITEM No	REPLACEMENT DATA: Tray Ler Part No.	GENERAL ELECTRIC Part No.	SYLVANIA Part No.	NOTES
V16	21ALP4A	21ALP4A 21ALP4B 1 21ALP4	21AVP4A 21AVP4B 2 21AVP4A 21AVP4B 2	1 Aluminized 2 Suver screen 85

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP.	VOLT	REPLACEMENT DATA: Tray-Ler PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	250	150	EC-47	PRS-013	XCD139	WT330	CDB-T-1015	D-095	R3398 *
B	250	150						94T-1550	
C2A	50	150	EC-54A	PRS150V50	BBRD5515	TDLD-9	TD-550-25	FMD-1550	TVA-3453
B	50	150		50					
C3	200	25	EC-49	PRS150V200	BR2505	TC350L LTC350L	TD-350-25	MTH-3525	TVA-1308
C4	10	450	EC-53 ①	PR3450V10	BR1046	TC12	TD-10-450	MT-4510	TVA-1705

1 Not used in some versions.
* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING: CAP	VOLT	Tray Ler PART No	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	68		CC-31	NPO-81 68	DE-680	CTA8Q68C	ED-68		5TCC-Q68	10%
C6	.0001			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C7	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C8	.25	200		P388N-05	DF-502	CUB285		GEM-415	2TM-S5	
C9	680				1R5T68	ED-680			MS-368	10%
C10	.1	200		P388N-1	DF-104	CUB2P1		GEM-301	2TM-P1	
C11	680				D6-681	1R5T68	ED-680		MS-368	10%
C12	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C13	680				D6-681	1R5T68	ED-680		MS-368	10% ①
C14	.0001			BPD-005	DD-502	BYA5D5	ED-005	DC525	5HK-D5	
C15	4.7		CC-15	NPO-81 4.7	TCZ-4R7	CTA6Y4C	TCO-4.7	ZT-5S47	5TCCB-Y47	
C16	3.3		CC-19	NPO-81 3.3	TCZ-3R3	CTA6Y3C	TCO-3.3	ZT-5S33	5TCCB-Y33	
C17	.02	600		P688N-03	DD-303	CUB5E3	ED-03	GEM-613	5TM-S3	
C18	5000			BPD-005	DD-502	BYA5D5	ED-005	DC525	5HK-D5	
C19	1000			BI 100		L7YT1	GP-100	UC-531	5GA-S1	
C20	.1	600		P688N-1	DF-104	CUB2P1		GEM-601	2TM-P1	
C21	.1	300		P388N-1	DF-104	CUB2P1		GEM-301	2TM-P1	
C22	10			BI 10	DS-100	L7EQ	GP-10	UC-541	5GA-Q8	
C23	4.7			NPO-81 4.7	TCZ-4R7	CTA6Y4C	TCO-4.7	ZT-5S47	5TCCB-V47	
C24	5000			BPD-005	DD-502	BYA5D5	ED-005	DC525	5HK-D5	
C25	5000			BPD-005	DD-502	BYA5D5	ED-005	DC525	5HK-D5	
C26	5000			BPD-005	DD-502	BYA5D5	ED-005	DC525	5HK-D5	
C27	18		CC-48	NPO-81 18	TCS-18	CTA4S1C	TCO-18		5TCC-Q18	NPO 10%
C28	.02	300		P388N-02	DD-203	CUB2E2	ED-02	GEM-412	2TM-S2	
C29	5000			BPD-005	DD-502	BYA5D5	ED-005	DC525	5HK-D5	
C30	.1	600		P688N-1	DF-104	CUB2P1		GEM-601	2TM-P1	
C31	5000			BPD-005	DD-502	BYA5D5	ED-005	DC525	5HK-D5	
C32	470			1464-00047	D6-471	1R5T47	ED-470		MS-347	10%
C33	.02	600		P688N-03	DD-303	CUB5E3	ED-03	GEM-613	5TM-S3	
C34	.01	600		P688N-01	D6-103	CUB5E1	GP-10000	GEM-611	5TM-S1	
C35	4700					1R5D47	C79DC472E		MS-347	10%
C36	4700			1464-0047		1R5D47	CY30C472E		MS-347	10%
C37	.01	600		P688N-01	D6-103	CUB5E1	GP-10000	GEM-611	5TM-S1	
C38	2200			1464-0022		1R5D22	CY30C222E		MS-222	10%
C39	4700			1464-0047		1R5D47	CY30C472E		MS-347	10%
C40	.25	300		P388N-25		CUB2P25		GEM-2025	2TM-P25	
C41	.1	600		P688N-1	DF-104	CUB5P1		GEM-601	5TM-P1	
C42	.02	600		P688N-02	DD-203	CUB5E2	ED-02	GEM-613	5TM-S2	
C43	680			1464-00065	D6-681	1R5T68	ED-680		MS-368	10%
C44	1000			SI 1000	D6-103	L7EQ	GP-1000	UC-531	5HK-D1	
C45	.02	300		P688N-02	DD-203	CUB5E2	ED-02	GEM-412	5TM-S2	
C46	1000			SI 1000	D6-102	L7EQ1	GP-1000	UC-531	5HK-D1	
C47	.01	600		P688N-01	D6-103	CUB5E1	GP-10000	GEM-611	5TM-S1	
C48	.25	300		P388N-25		CUB2P25		GEM-2025	2TM-P25	
C49	3900			1464-0039		1R5D39	CY30C392E		MS-339	10%
C50	100			1464-0001		1R5D1	CY30C1R2		MS-31	5% ①
C51	470			1464-00047	D6-471	5R5T47	ED-470		MS-347	10%
C52	.005	600		P688N-005	DD-302	CUB5E05	GP-5000	GEM-625	5TM-S5	
C53	.25	300		P388N-25		CUB2P25		GEM-2025	2TM-P25	
C54	.25	300		P388N-25		CUB2P25		GEM-2025	2TM-P25	
C55	.25	600		P688N-25		CUB5P25		GEM-5025	5TM-P25	
C56	33	4000	CC-47							10%
C57	47	1500	CC-27							10%
C58	56	1500								10% ②
C59	5000			BPD-005	DD-502	BYA5D5	ED-005	DC525	5HK-D5	
C60	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C61	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C62	.05	600		P688N-05	DF-503	CUB5E5		GEM-615	5TM-P5	

1 Some versions use 1000MMF in this application.
2 Some versions use 47MMF, 1500V in this application (Part #CC-27).

PARTS LIST AND DESCRIPTIONS

CONTROLS

ITEM No	RATING: RESIST ANCE	WATTS	Tray-Ler PART No.	REPLACEMENT DATA: CENTRALAB PART No.	CLAROSTAT PART No.	HRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg		VC-51	B-70-S	A47-1Meg-T	Q3-137	U50	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWS-12	78-1	US-28	
R2A	1.5Meg		VC-53	B-T43	A47-1.5Meg -S	Q1-138	U153	Vert. Hold
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	50k		VC-73	B-51	A47-50K-S	Q1-123	TA84L	Horiz. Hold
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4A	100k		VC-61	B-A	A47-100-S	Q1-109	TA25L	Contrast
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R5A	350K		VC-74	AB-S8	A47-350K-S	Q1-132	PTA85L	Brightness
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R6A	2.5Meg		VC-78	AB-83	A47-2.5Meg -S	Q1-139	SU-565	Vert. Size
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R7A	750U		VC-77	AB-S	A47-750-S	Q1-105	PTA75L	Vert. Lin.
B	Shaft			AK-19	RN-3	TQ	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING: OHMS	WATT	Tray-Ler PART No.	NOTES
R8	100K			
R9	2200Ω			
R10	100K			
R11	430Ω 5%			Note 1
R12	430Ω 5%			Note 1
R13	33Ω			
R14	27K			
R15	470Ω			Note 2
R16	220Ω			
R17	6800Ω			
R18	1Meg			
R19	2.2Meg			
R20	68K			
R21	5900Ω	2		
R22	22K			
R23	150K 5%			
R24	2200Ω			
R25	100K			
R26	560Ω			
R27	390K			
R28	100K 5%			
R29	180K			
R30	560K			
R31	6800Ω			
R32	680Ω			
R33	1000Ω	2		
R34	180Ω			
R35	2.2Meg			
R36	15K			
R37	1Meg			
R38	5000Ω			

ITEM No	RATING: OHMS	WATT	Tray-Ler PART No.	NOTES
R39	15000 5%			Note 3
R40	820K 5%			
R41	4700Ω			
R42	1Meg 5%			
R43	47K	1		
R44	3200Ω			
R45	560Ω			
R46	560Ω			
R47	100K 5%			
R48	100K 5%			
R49	8200Ω			
R50	220K			
R51	4700Ω			
R52	98K			
R53	33K			
R54	8800Ω			
R55	1200Ω			
R56	100K 5%			
R57	22K			
R58	100K	1		
R59	680K			
R60	10000	1		
R61	680K			Note 4
R62	20K 5%	1		Note 5
R63	150			
R64	2.2Ω		WR-32	
R65	820K			
R66	1Meg			
R67	470Ω	1		
R68	5Ω		F-6	

Note 1. Some versions may use a 470Ω in this application
Note 2. Some versions may use a 68Ω in this application.
Note 3. Some versions may use a 10000Ω in this application.
Note 4. Some versions may use a 1Meg in this application.
Note 5. Not used in some versions

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: Tray-Ler PART No.	Hallodorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert Osc.	TR-32	H6703	A-5003	V405	A-8125	38A05	A-97X	
T2	Vert. Output	TR-31	21900 ①	A-2832 ②	V34i ③	A-8147 ③	28S71 ②	A-108X ②	
T3A	Yoke-Horiz. (20 5MIL)	L-71-1	DP805	MDF-73	YTOF30/43	DY-11A	Y-10	Y-22 &	
B	(70°)-Vert. (25, 5MIL)		③④⑤		③ ⑤⑥	③ ⑤	③ ⑤	NW-2 ③⑦	
	Alternate Yoke	L-71							
T4	Horiz. Output	TR-30	FB419 ③ * §	HVO-87 ③ * §	X080 ③ * §	A-8280 ③ * §	FLY-16 ③ * §	D-95 ⑤ * §	
M5	Rear Cover and Centering Device		5R5747	ED-470		MS-347		YC1	10%
			P688N-03	DD-303	CUB5E3	ED-03	GEM-613	5TM-S3	
			P688N-01	D6-103	CUB5E1	GP-10000	GEM-611	5TM-S1	
					1R5D47	C79DC472E		MS-347	10%
			1464-0047		1R5D47	CY30C472E		MS-347	10%
			P688N-01	D6-103	CUB5E1	GP-10000	GEM-611	5TM-S1	
			1464-0022		1R5D22	CY30C222E		MS-222	10%
			1464-0047		1R5D47	CY30C472E		MS-347	10%
			P388N-25		CUB2P25		GEM-2025	2TM-P25	
			P688N-1	DF-104	CUB5P1		GEM-601	5TM-P1	
			P688N-02	DD-203	CUB5E2	ED-02	GEM-613	5TM-S2	
			1464-00065	D6-681	1R5T68	ED-680		MS-368	10%
			SI 1000	D6-103	L7EQ	GP-1000	UC-531	5HK-D1	
			P688N-02	DD-203	CUB5E2	ED-02	GEM-412	5TM-S2	
			SI 1000	D6-102	L7EQ1	GP-1000	UC-531	5HK-D1	
			P688N-01	D6-103	CUB5E1	GP-10000	GEM-611	5TM-S1	
			P388N-25		CUB2P25		GEM-2025	2TM-P25	
			1464-0039		1R5D39	CY30C392E		MS-339	10%
			1464-0001		1R5D1	CY30C1R2		MS-31	5% ①
			1464-00047	D6-471	5R5T47	ED-470		MS-347	10%
			P688N-005	DD-302	CUB5E05	GP-5000	GEM-625	5TM-S5	
			P388N-25		CUB2P25		GEM-2025	2TM-P25	
			P388N-25		CUB2P25		GEM-2025	2TM-P25	
			P688N-25		CUB5P25		GEM-5025	5TM-P25	

① Use 8 to 1 turns ratio.
② Drill new mounting hole(s).
③ Connect blue lead to plate, green lead to yellow lead of yoke, remove black lead of yoke from ground, connect black lead of yoke and red lead of autoformer to B- and pin #4 of vert. output tube.
④ Connect blue lead to plate, black lead to yellow lead of yoke, remove black lead of yoke from ground, connect black lead of yoke and red lead of autoformer to B- and pin #4 of vert. output tube.
⑤ Requires new centering device. Use original horizontal damping network, if necessary.
⑥ Connect horizontal damping capacitor across yoke terminals #1 and #2.
⑦ Connect same as original.
⑧ Use original mounting bracket.
§ This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Hallodorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
9	9	4	2	3	9	5
8	7	8	1	2	7	4
7	7	7	6	2	7	4
6	NC Sec Note ⑧	2	4	NC Sec Note ⑧	NC Sec Note ⑧	YCT
5	1	1	7	1	1	1
Spiral Notes →	9 ⑩		⑩	9	9 ⑩	

⑨ To reduce yoke "Ringing", remove capacitor C58 from horizontal yoke terminals #1 and #2, connect it in series with 56OΩ, ½ watt across horizontal yoke terminals #3 and #7.
⑩ Filament requires 2 turns.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE: PRI	SEC	REPLACEMENT DATA: Tray-Ler PART No.	Hallodorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	4400Ω CT	3-4Ω	AT-16 AT-16	ZU07 ZU18	A-2930 A-2934	A-3877 A-3881	24S80 24S54	S-5iX S-5iX	1 Alternate part number used in some versions

SPEAKER

ITEM No	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: Tray-Ler PART No.	QUAM PART No.	NOTES
SP1	6½"	PM	3-4Ω	7500X31 ①	6A31	① Used in Models 621-750, U
	4 x 6	PM	3-4Ω	SPK-25 ②	3-4Ω	② Alternate part number used in Models 621-750, U
	5"	PM	3-4Ω	SPK-50 ③	5A07	③ Used in Models 621-740, U
	6 x 9	PM	3-4Ω	SPK-65 ④		④ Used in Models 721-R400, U

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: Tray-Ler PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	1st. Video IF	L-78	17-4534	TV-131		VF-4	
L2	2nd. Video IF	L-69					Note 1
L3	3rd. Video IF	L-97					Note 2
L4	4th. Video IF	L-96	17-4524	TV-130	6219	VF-3	
L5	RF Choke	L-85	19-1006	RC-986	4813		8.2 Microhenries
L6	Series Peaking Coil	L-87	19-7068	TV-185	6173		68 Microhenries
L7	Series Peaking Coil	L-66	19-3300 *	TV-190 *	6132 *	VP-7 *	330 Microhenries, wound on 2TK resistor
L8	Shunt Peaking Coil	L-66	19-3500	TV-206	5148		680 Microhenries
L9	4.5MC Trap	L-185	20-1004 ▲	TV-151 ▲	1469 ▲	SF-3 ▲	
L10	1st. Sound IF	L-79	17-3400 ▲			1470 ▲	
L11	2nd Sound IF	L-80					
L12	Quadrature Coil	L-76	30-1005	TV-121	1490		

* Parallel 2TK resistor.
▲ Drill mounting hole
Note 1 Part #L-83 used in Ch. 632-26 and 631-26.
Note 2. Part #L-90 used in Ch. 632-26 and 631-26.

TRANSFORMER (HORIZ. OSC.)

ITEM No	DC RES: PRI	SEC	REPLACEMENT DATA: Tray-Ler PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L13	1500		L-94	19-1576	TV-163	6210	H-102	HB-5	20. 8 - 43 Millihenries

FILTER CHOKE

ITEM No	RATINGS: TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE @ CURRENT 1000 ~(v)	REPLACEMENT DATA: Tray-Ler PART No.	Hallodorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L14	.270A	23Ω	.8 HY	FC-3			C-2328 ②	28C46 ①	C-37X

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRAY-LER PART No.	REPLACEMENT DATA
K1	Antenna Isolation	470MMF, .3-1Meg	CC-55	Centralab RC-471 Sprague R-11T7
K2	Antenna Isolation	470MMF, .3-1Meg	CC-55	Centralab RC-471 Sprague R-11T7
K3	Vert. Integrator	2000MMF, 6000MMF, 5000MMF, 22K, 6200Ω, 8200Ω	CC-38	Aerovox PA-110 Centralab PC-100 Cornell-Dubilier 15TM1 Erie 1406-01 Sprague Y-1

RECTIFIERS

ITEM No	RATING: CURRENT (Measured)	REPLACEMENT DATA: Tray-Ler PART No.	FEDERAL PART No	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No	SARKES TARZIAN PART No.	NOTES
M1	270A	SR-8 1	1238A 1	1N1007 2	MR350 1	350A 1 M500 3	① Selenium type. ② Germanium type. ③ Silicon type.

CRYSTAL DIODES

ITEM No	OEIG. TYPE	REPLACEMENT DATA: Tray-Ler PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M2	1N60	SC-1	1N60	1N86	Video Detector (Pigtail)

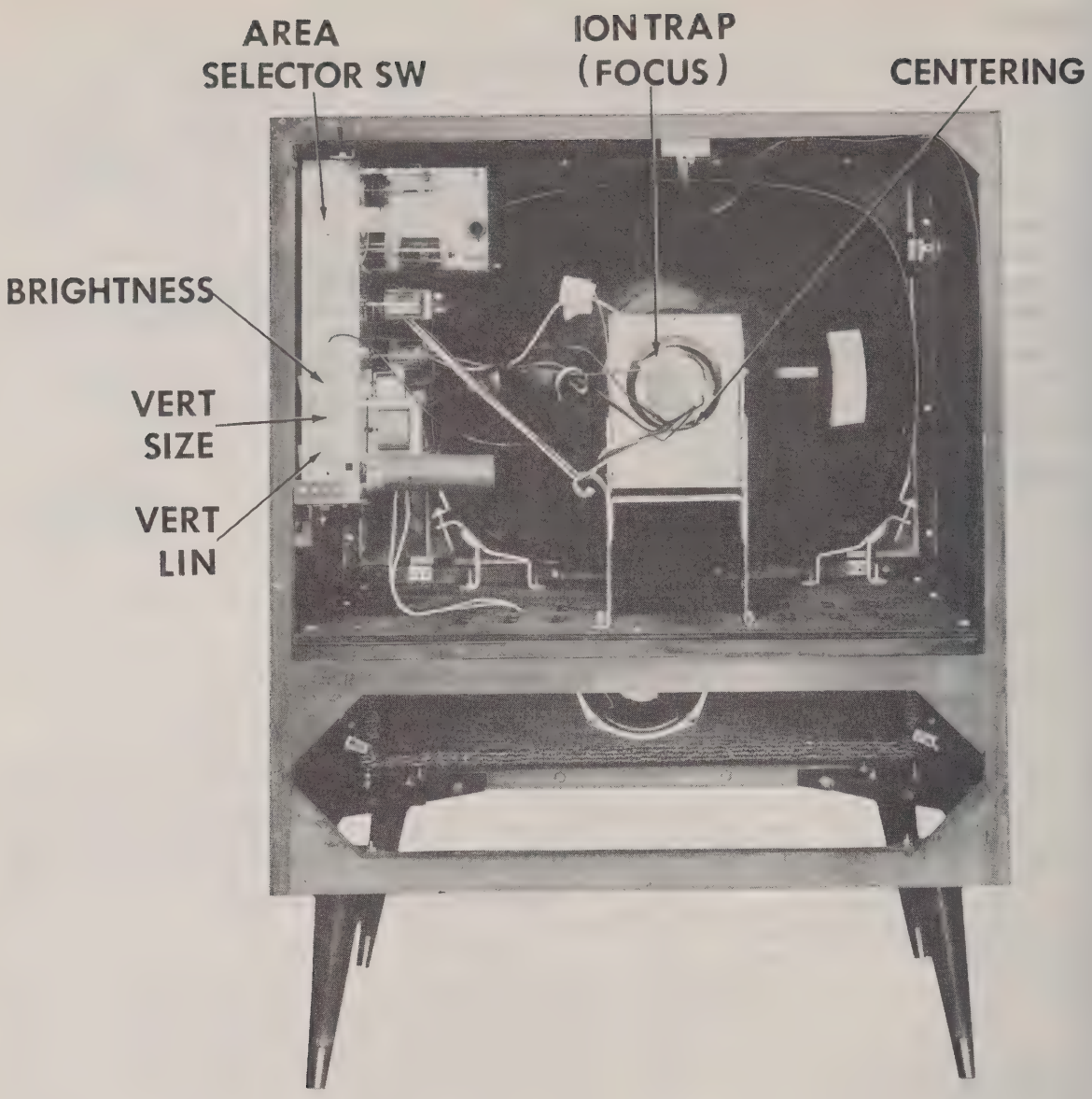
MISCELLANEOUS

ITEM No.	PART NAME	Tray-Ler PART No.	NOTES
M3	Tuner	TA-32	VHF - Ch. 632-26, -46
	Tuner	TA-31	UHF/VHF - Ch. 631-26, -46
M4	Switch	SW-19	Local-Fringe-Distant (Rotary, wafer type)
M5	Centering Device		Includes yoke cover
M6	Ion Trap	MA-7	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	DW-53T	Models 621-740, U, 621-750, U
Safety Glass	DW-56T	Models 721-R400, U
Mask	MP-70	Models 621-740, U, 621-750, U
Mask	MP-58	Models 721-R400, U
Knob	K-104	Channel Selector - VHF Models
Knob	K-190B	VHF Channel Selector - UHF/VHF Models
Knob	K-191B	UHF Channel Selector
Knob	K-195	Fine Tuning - VHF Models
Knob	K-189	Fine Tuning - UHF/VHF Models
Knob	K-194	Control - Models 621-740, U, 621-750, U
Knob	K-198	Control - Models 721-R400, U



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

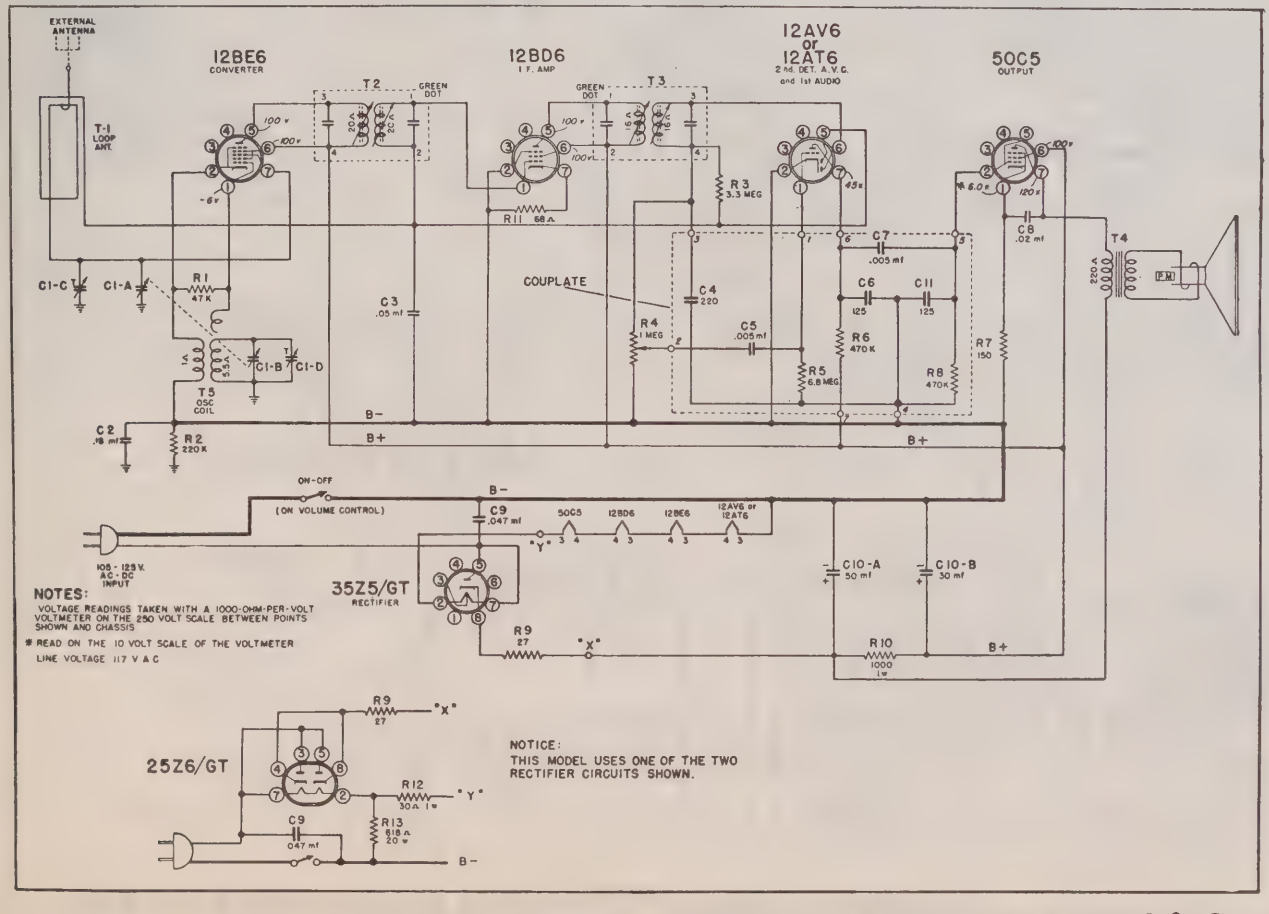
The PHOTOFACT Servicer

Set 384
Vol. 39

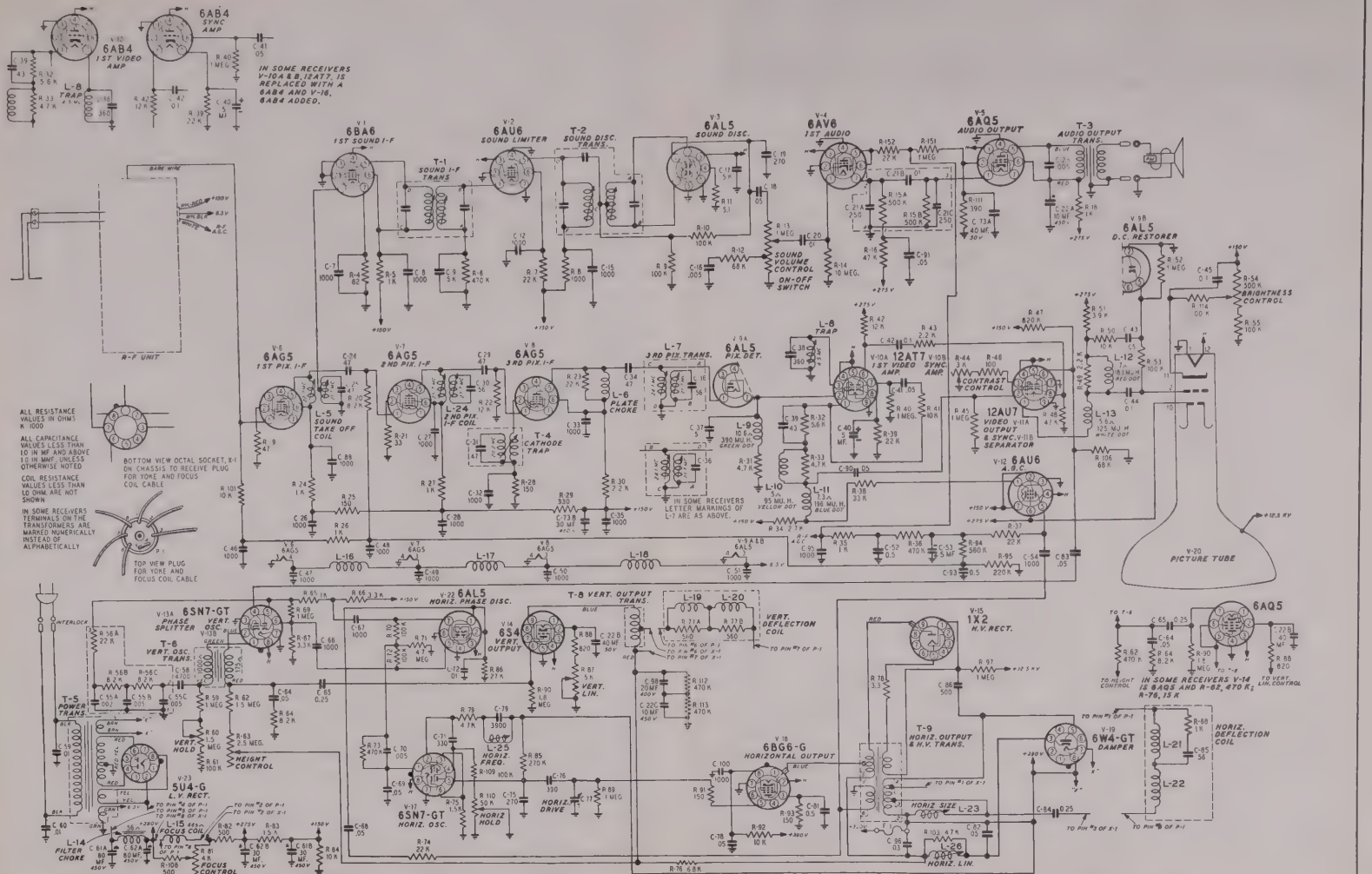
★ *Published for all users of Howard W. Sams' Photofact Folders* ★ Dec. 1, 1957

The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.

AIRLINE MODELS 05BR-1525B, C, 05BR-1526B, C, 05BR-1531B, C, 05BR-1532B, C



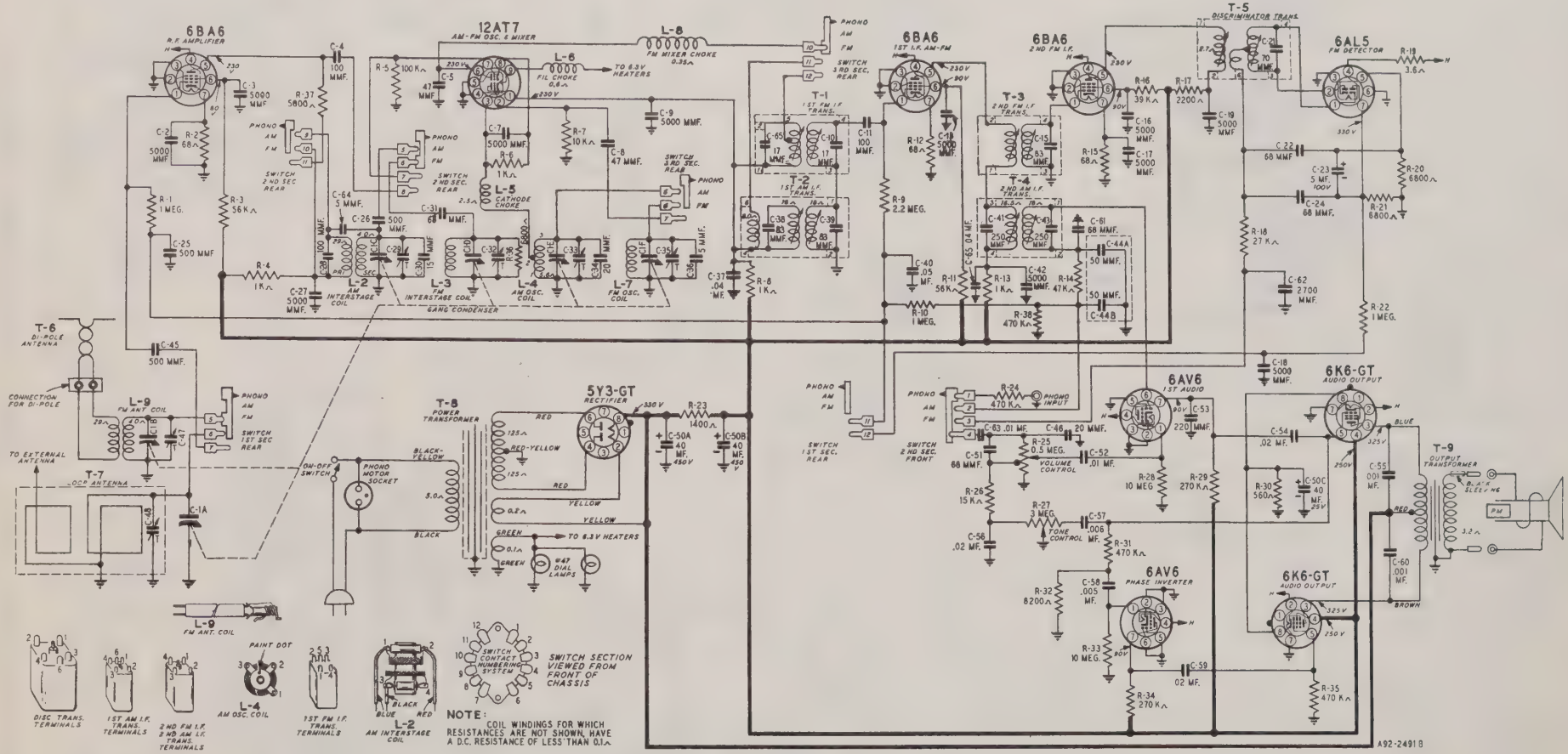
Schematic Diagram Courtesy of Montgomery Ward & Co.


6AB4 SYNC AMP
6AB4 1ST VIDEO AMP
L-8 TRAP
IN SOME RECEIVERS V-10A & B, 12AT7, IS REPLACED WITH A 6AB4 AND V-16, 6AB4 ADDED.
6BA6 1ST SOUND I-F
T-1 SOUND I-F TRANS
6AU6 SOUND LIMITER
T-2 SOUND DISC. TRANS.
6AL5 SOUND DISC.
6AV6 1ST AUDIO
6AQ5 AUDIO OUTPUT
T-3 AUDIO OUTPUT TRANS.
SOUND VOLUME CONTROL ON-OFF SWITCH
6AL5 D.C. RESTORER
BRIGHTNESS CONTROL
R-F UNIT
6AG5 1ST PIX. I-F
6AG5 2ND PIX. I-F
6AG5 3RD PIX. I-F
L-5 SOUND TAKE OFF COIL
L-24 2ND PIX. I-F COIL
T-4 CATHODE TRAP
L-6 PLATE CHOKE
L-7 3RD PIX. TRANS.
6AL5 PIX. DET.
L-8 TRAP
12AT7 1ST VIDEO SYNC. AMP.
CONTRAST CONTROL
12AU7 VIDEO OUTPUT & SYNC. SEPARATOR
L-12
L-13
6AU6 A.G.C.
ALL RESISTANCE VALUES IN OHMS K 1000
ALL CAPACITANCE VALUES LESS THAN 10 IN MF AND ABOVE 10 IN MMF UNLESS OTHERWISE NOTED
COIL RESISTANCE VALUES LESS THAN 10 OHM ARE NOT SHOWN
IN SOME RECEIVERS TERMINALS ON THE TRANSFORMERS ARE MARKED NUMERICALLY INSTEAD OF ALPHABETICALLY
BOTTOM VIEW OCTAL SOCKET, X-1 ON CHASSIS TO RECEIVE PLUG FOR YOKE AND FOCUS COIL CABLE
TOP VIEW PLUG FOR YOKE AND FOCUS COIL CABLE
IN SOME RECEIVERS V-10A & B, L-7 ARE AS ABOVE.
IN SOME RECEIVERS LETTER MARKINGS OF L-7 ARE AS ABOVE.
V-20 PICTURE TUBE
L-16
L-17
L-18
6SN7-GT PHASE SPLITTER VERT. OSC.
T-6 VERT. OSC. TRANS.
6AL5 HORIZ. PHASE DISC.
6S4 VERT. OUTPUT
T-8 VERT. OUTPUT TRANS.
L-19
L-20
VERT. DEFLECTION COIL
1X2 H.V. RECT.
6AQ5
IN SOME RECEIVERS V-14 IS 6AQ5 AND R-82, 470 K, R-76, 15 K
T-5 POWER TRANS.
VERT. HOLD
HEIGHT CONTROL
VERT. LIN.
5U4-G L.V. RECT.
L-15 FOCUS COIL
FOCUS CONTROL
L-14 FILTER CHOKE
6SN7-GT HORIZ. OSC.
HORIZ. HOLD
L-25 HORIZ. FREQ.
HORIZ. DRIVE
6BG6-G HORIZONTAL OUTPUT
T-9 HORIZ. OUTPUT & H.V. TRANS.
6W4-GT DAMPER
HORIZ. DEFLECTION COIL
L-21
L-22
L-23 HORIZ. SIZE
L-26 HORIZ. LIN.
INTERLOCK
TO PIN #1 OF P-1
TO PIN #2 OF P-1
TO PIN #3 OF P-1
TO PIN #1 OF X-1
TO PIN #2 OF X-1
TO PIN #3 OF X-1
TO HEIGHT CONTROL
TO VERT. LIN. CONTROL
TO I-F
TO PIN #3 OF X-1
TO PIN #3 OF P-1

AIRLINE MODELS 05WG-3032B, 05WG-3036C, 05WG-3039C, D

'Schematic Diagram Courtesy of Montgomery Ward & Co.

AIRLINE MODEL 05WG-2745B



Schematic Diagram Courtesy of Montgomery Ward & Co.

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 5 IN SET 357

Motorola chassis TS-539, Y, TTS-539, Y, VTS-539, Y, WTS-539, Y were covered in Photofact Folder 5 — Set 357.

Late in production new models and late production changes were added.

Following is a complete list of all models and the chassis used in each.

MODEL	CHASSIS	MODEL	CHASSIS
A21C5B, MC	TTS-539	YA21C5B, MC	TTS-539Y
A21F6W, Y	TTS-539	YA21F6W, Y	TTS-539Y
A21K54B, M	TS-539	YA21K54B, M	TS-539Y
A21K56B, M	WTS-539	YA21K56B, M	WTS-539Y
A21K57B, M, MCH	WTS-539	YA21K57B, M, MCH	WTS-539Y
A21K58B, M	WTS-539	YA21K58B, M	WTS-539Y
A21K59M, MCH	VTS-539	YA21K59M, MCH	VTS-539Y
A21K60B, M	TTS-539	YA21K60B, M	TTS-539Y
A21K61MCH, W	TTS-539	YA12K61MCH, W	TTS-539Y
A21K62M	TTS-539	YA21K62M	TTS-539Y
A21K63CW	TTS-539	YA21K63CW	TTS-539Y
A21K67B, M, Y	TS-539	YA21K67B, M, Y	TS-539Y
A21T33BG, CH, MG	TS-539	YA21T33BG, CH, MG	TS-539Y
A21T35B, M	TS-539	YA21T35B, M	TS-539Y
A21T36B, M	WTS-539	YA21T36B, M	WTS-539Y
A24K14B, M	VTS-539	YA24K14B, M	VTS-539Y
A24K15M, MCH	VTS-539	YA24K15M, MCH	VTS-539Y
A24T6B, M	VTS-539	YA24T6B, M	VTS-539Y

MOTOROLA CHASSIS TS-539, Y, TTS-539, Y, VTS-539, Y, WTS-539, Y

(Continued on Reverse Side)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 15 IN SET 341

Sylvania Models 21C401, 21C404, 21C405, 21C508, 21C509, 21T101, 21T102, 21T104, 21T105, 21T106, 21T110, 21T207, 21T208, 24T101 and 24T201 Series (Ch. 1-532-3, -4, -5, -6, -7) were covered in Photofact Folder 15 — Set 341.

Models 21C406, 21C510, 21T107, 21T108, 21T112, 21T211 and 24C402 Series (Ch. 1-532-5, -6, -9, -0) are added, along with late production changes, with the publication of this bulletin.

AC LINE FILTER ADDED

An AC line filter has been added in later production. A partial schematic showing the new circuit is given on the reverse side.

MODELS 21T107, 21T108

COMPONENT CHANGES

Two .0047MFD capacitors (wired in series) are wired in parallel with R124.

SYLVANIA CHASSIS 1-532-3, -4, -5, -6, -7, -9, -0

(Continued on Reverse Side)

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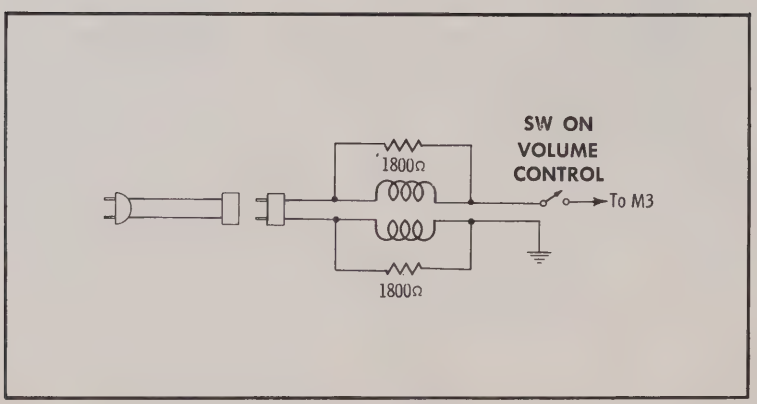
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

FOLDER 5

TS-539A-04	VOLTAGE RATING INCREASED The voltage rating of C98 and C99 is increased from 2000V to 3000V.
TS-539A-05	TO IMPROVE VERTICAL SWEEP C74 is increased from .003MFD to .0033MFD. C80 is decreased from .03MFD to .02MFD.
TS-539B-00	TO IMPROVE HORIZONTAL SWEEP C88 is increased from 100MMF to 150MMF. R101 is omitted.
TS-539B-01	TO ELIMINATE DC NOISE THRU VOLUME CONTROL A .01MFD @ 500V ceramic disc capacitor is added from R56 to the inner lead of the shielded cable connected to R1B, volume control and ground.
TS-539B-02	COMPONENT CHANGE R111 is increased from 15K to 18K. TO INCREASE RATIO DETECTOR TRANSFORMER STABILITY L28, ratio detector, is changed to part #24K735697 or 24B742247. When part #24K735697 is used, R55 is 47Ω and C58 is 470MMF. When part #24B742247 is used, R55 is 100Ω and C58 is 1000MMF. Also, a 90MMF ceramic disc capacitor must be connected across pins 1 and 2 of V10, ratio detector.
"R" Suffix	"R" SUFFIX ADDED TO CHASSIS CODING Chassis with "R" suffix stamped as part of the chassis coding indicates that the horizontal output circuit mentioned in TS-539B-02 above, is incorporated into that chassis.



SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 3 IN SET 353

Coronado Models TV1-9399A and TV1-9400A were covered in Photofact Folder 3 — Set 353.

Models TV3-9400B and TV3-9400C are electrically identical to the models covered, except for the following changes.

Code 17T27B 17T27C (Run 1)

TO IMPROVE OVERALL PERFORMANCE

V9 (audio output) is changed from 12BK5 to 5AQ5. A partial schematic showing the new circuit is given in Fig. 1.

V11 (horizontal AFC-horizontal oscillator) is changed from 7AU7 to 6CG7. A partial schematic showing the new circuit is given in Fig. 2.

R80 is increased from 50Ω to 58Ω.

R46 is increased from 150Ω to 330Ω.

R45 is omitted.

A 25MFD @ 25V electrolytic capacitor is added from pin 2 of V9 (5AQ5) to ground. (Shown in Fig. 1).

Code 17T27B 17T27C (Run 2)

TO IMPROVE OVERALL PERFORMANCE

K4 (sync couplate) is replaced by individual components. A partial schematic showing the new circuit is given in Fig. 3.

Code 17T27C (Run 1)

NEW VHF TUNER

Chassis coded 17T27C, Run 1, use a new VHF tuner. A schematic showing the new tuner is given in Fig. 4.

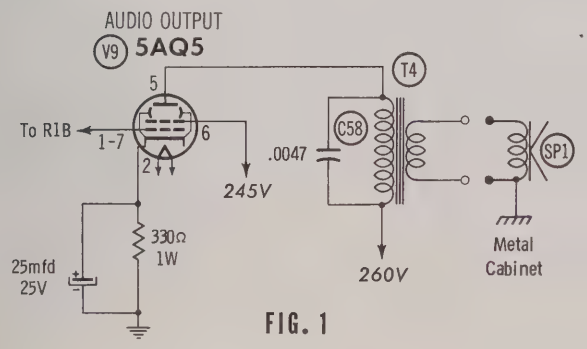


FIG. 1

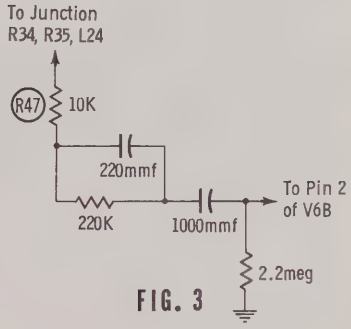


FIG. 3

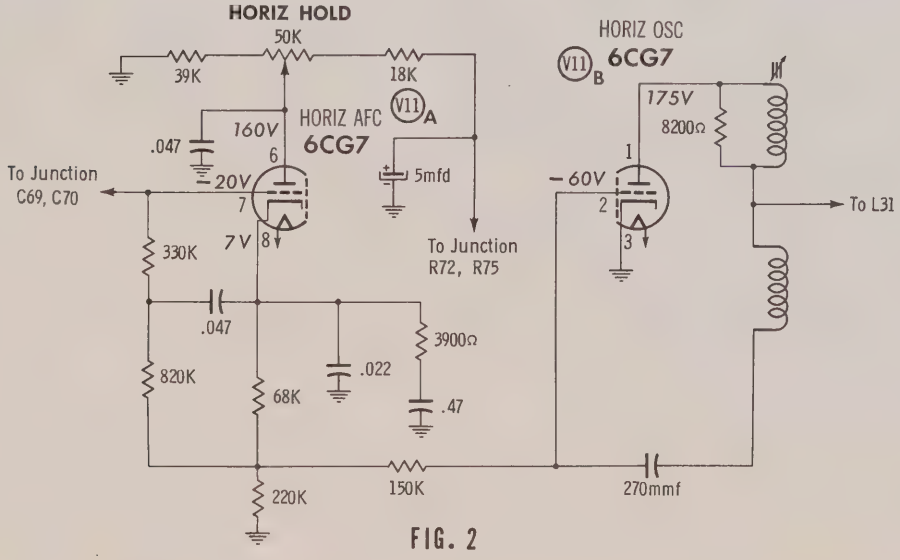


FIG. 2

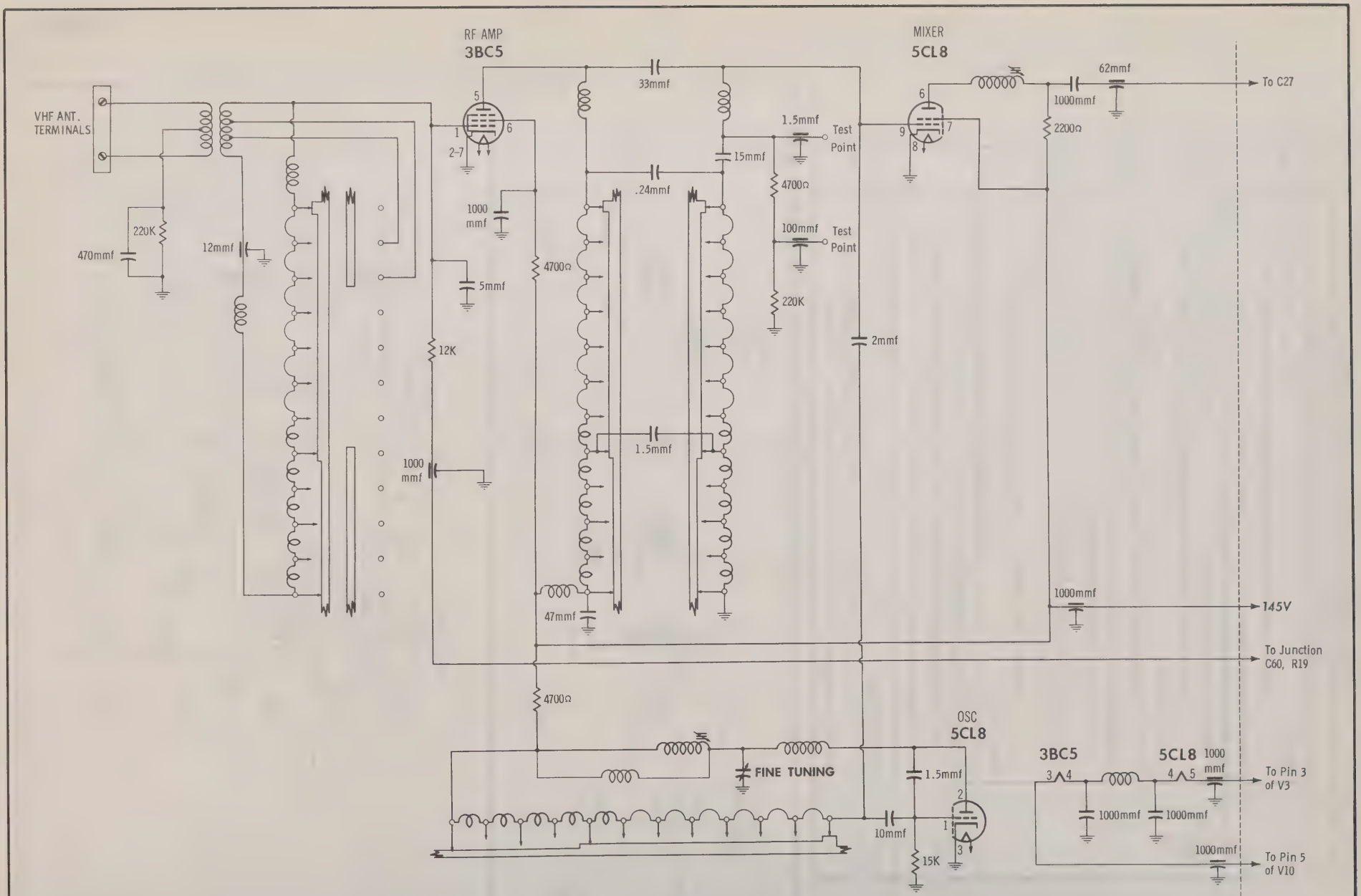
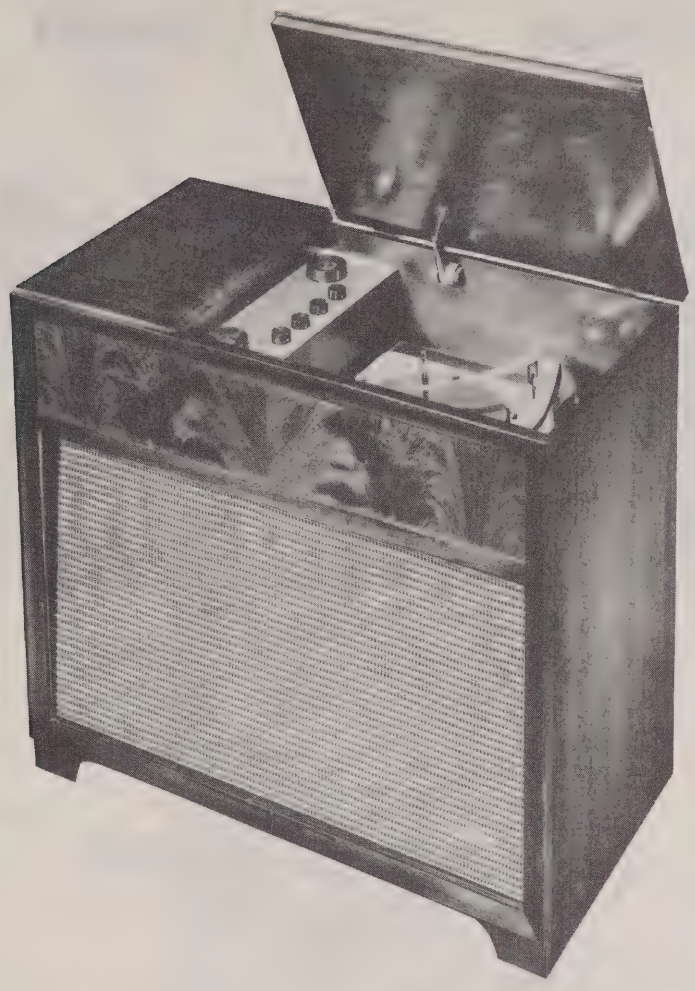

RF AMP
3BC5
MIXER
5CL8
VHF ANT. TERMINALS
220K
470mmf
12mmf
1000 mmf
5mmf
12K
1000 mmf
4700Ω
33mmf
.24mmf
1.5mmf
47mmf
15mmf
1.5mmf
Test Point
4700Ω
100mmf
Test Point
220K
2mmf
62mmf
1000mmf
2200Ω
To C27
1000mmf
145V
To Junction C60, R19
4700Ω
OSC
5CL8
FINE TUNING
1.5mmf
10mmf
15K
3BC5
5CL8
1000 mmf
To Pin 3 of V3
1000mmf
1000mmf
1000mmf
To Pin 5 of V10

FIG. 4

PHOTOFACT* Folder

AIRLINE MODELS GAA-2620A, GAA-2621A, GAA-2642A, GAA-2643A

AIRLINE MODELS GAA-2620A, GAA-2621A, GAA-2642A, GAA-2643A



AIRLINE MODELS GAA-2620A, GAA-2621A, GAA-2642A, GAA-2643A

TRADE NAME	Airline Models GAA-2620A, GAA-2621A, GAA-2642A, GAA-2643A		
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois		
TYPE SET	AC Operated FM-AM Receiver With 4 Speed Automatic Record Changer		
TUBES	Fourteen		
POWER SUPPLY	105-125 Volts AC-60 Cycles	RATING	1 Amp. @ 117 Volts AC (110 Watts Without Motor)
TUNING RANGE - BROADCAST	540-1600KC	FREQ. MOD.	88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODELS GAA-2620A & GAA-2621A — SEE V-M MODEL 1200 — PHOTOFACT SET 290 FOLDER 11.
FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODELS GAA-2642A & GAA-2643A —SEE V-M MODEL 1200A —PHOTOFACT SET 353 FOLDER 16.

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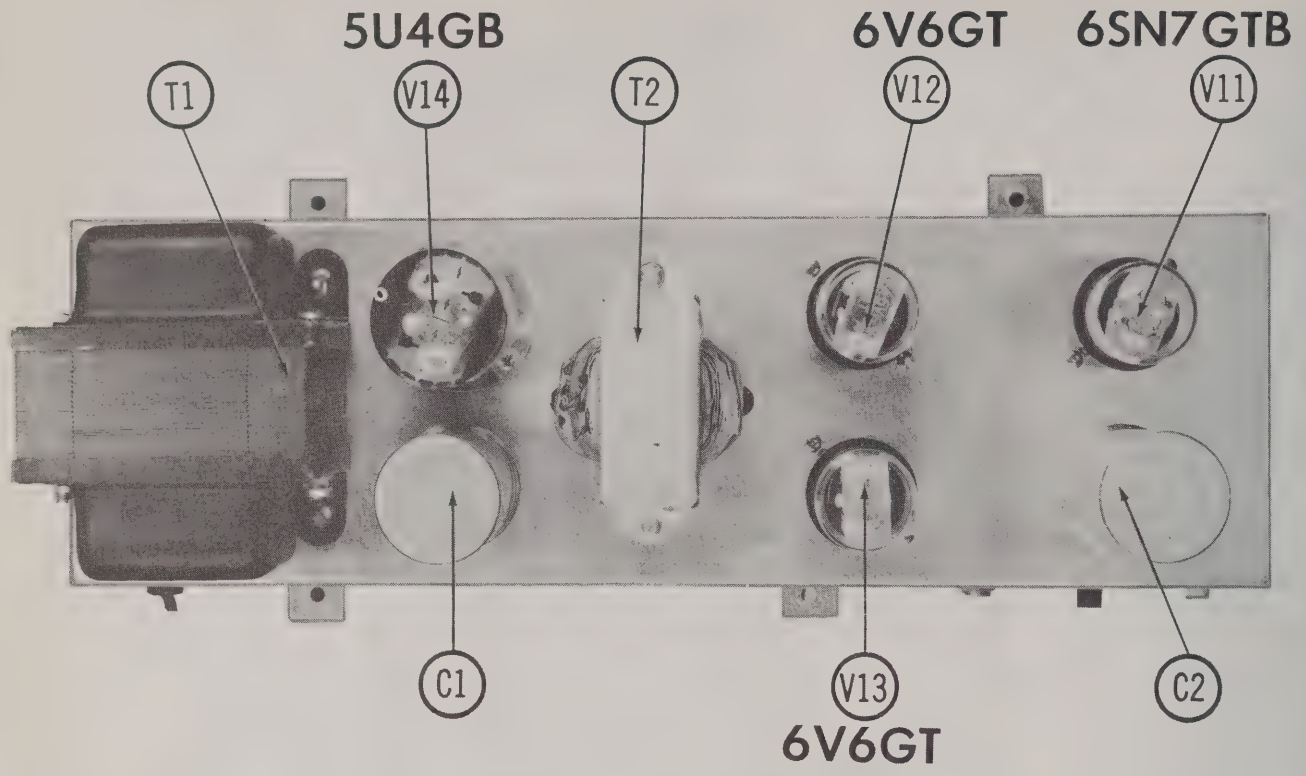
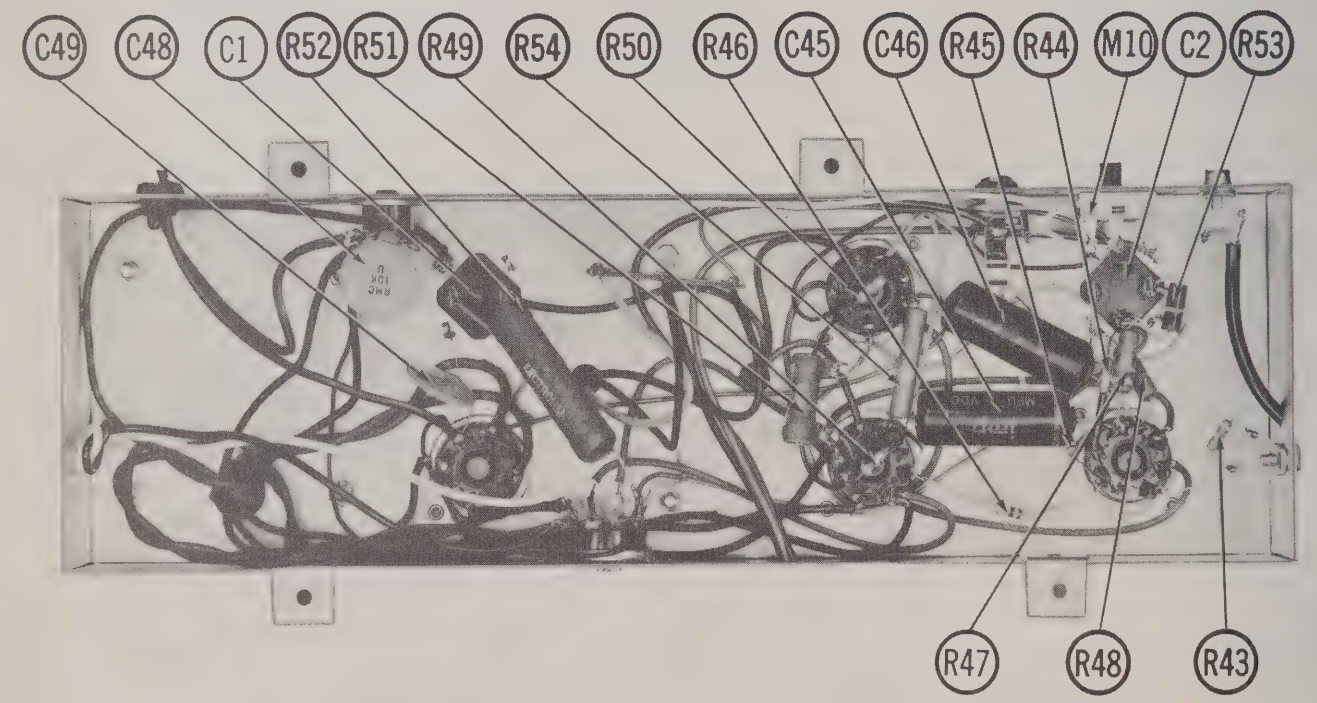
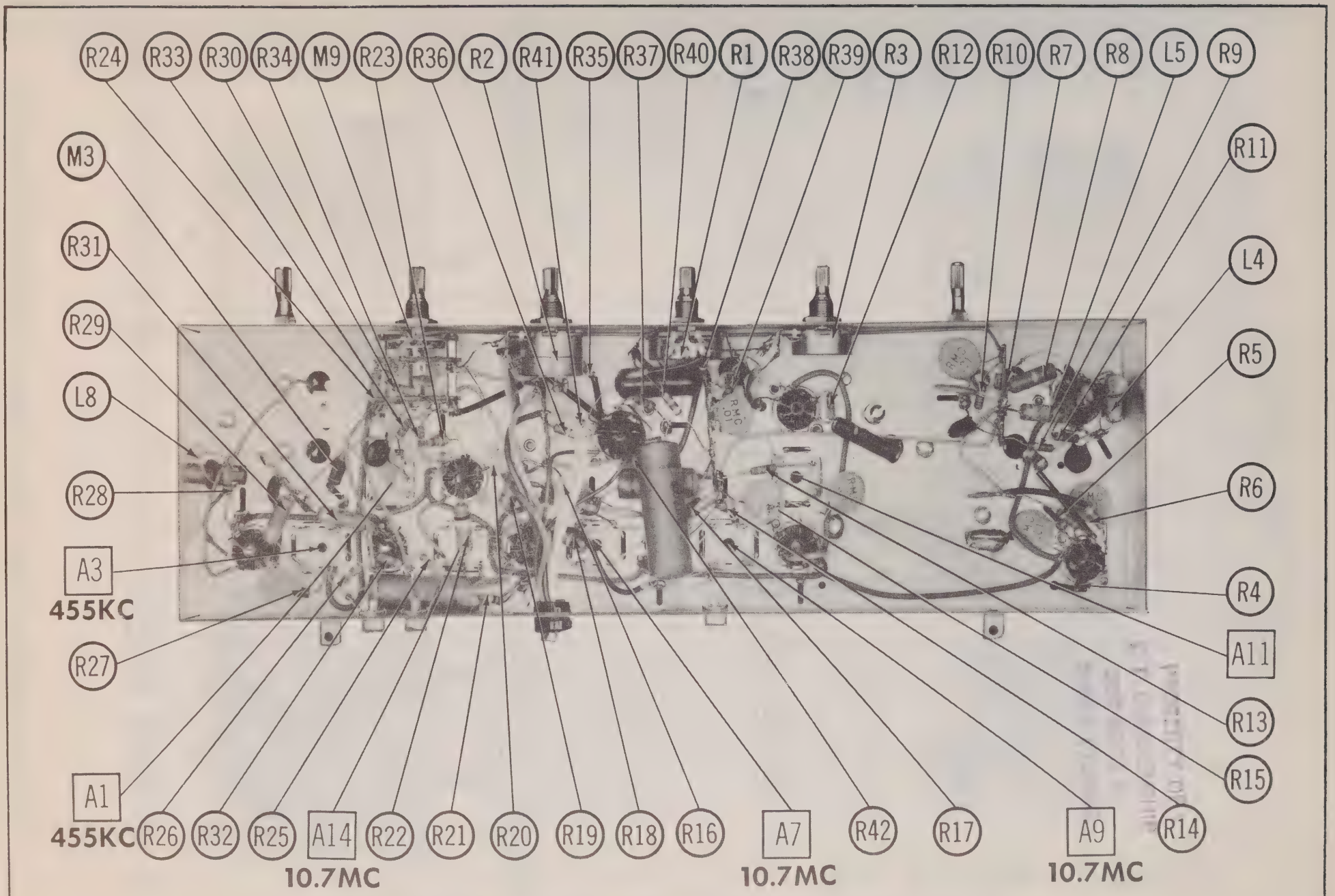


AMP CHASSIS — TOP VIEW



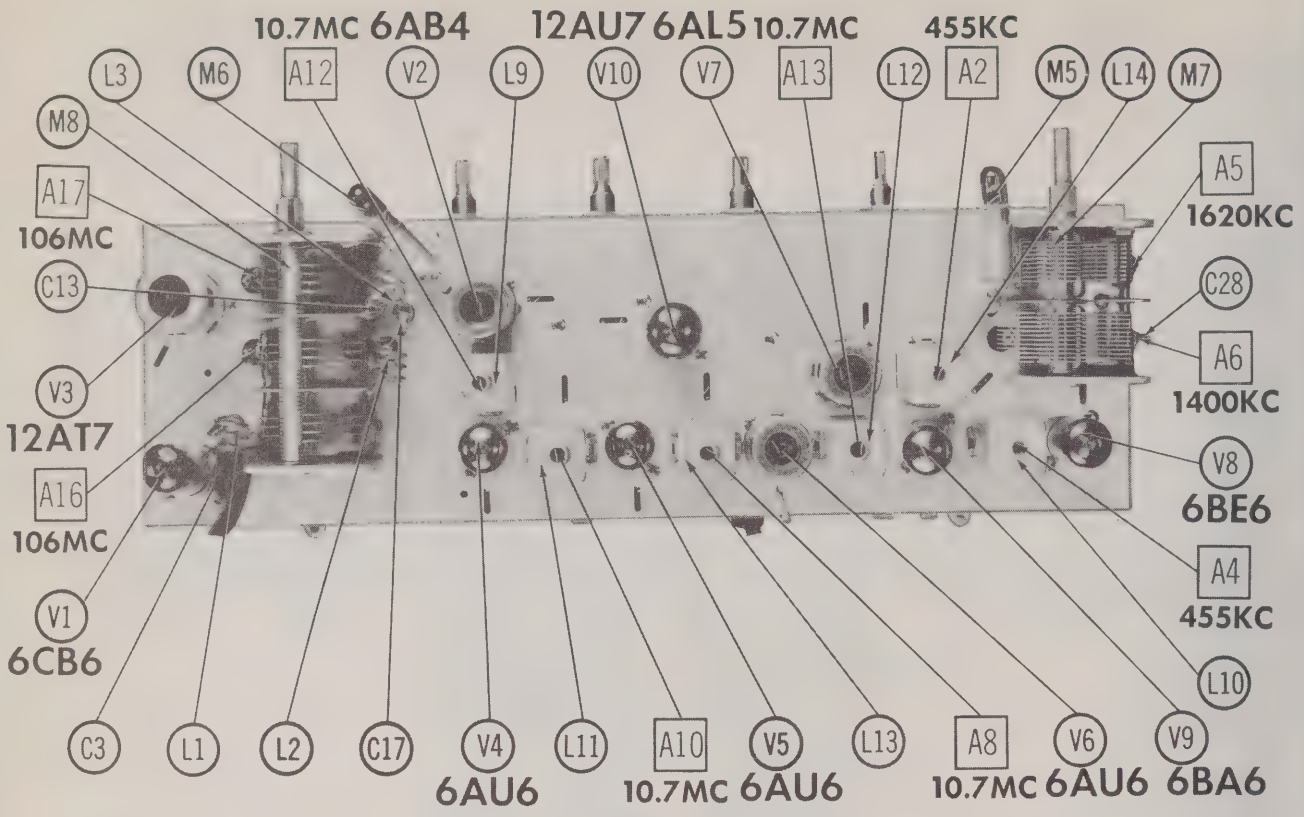
AMP CHASSIS — BOTTOM VIEW



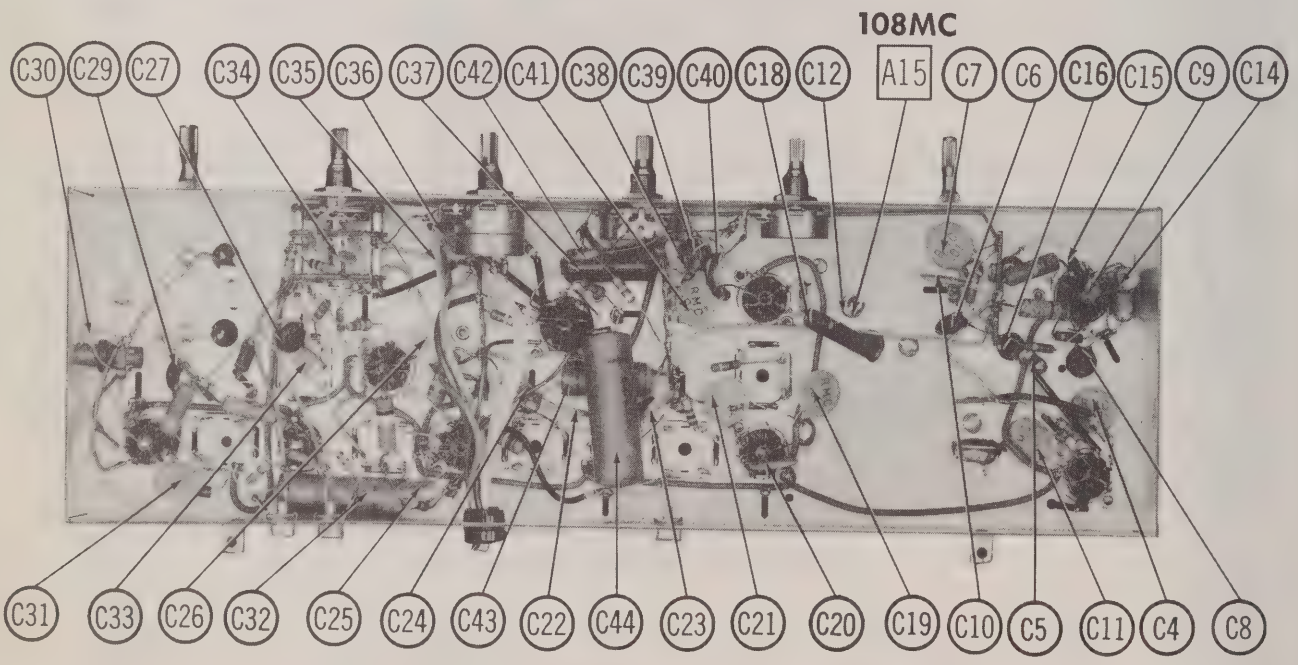
TUNER CHASSIS BOTTOM VIEW — RESISTOR IDENTIFICATION

AIRLINE
MODEL GAA-2620A

FOLDER 6



TUNER CHASSIS — TOP VIEW



TUNER CHASSIS BOTTOM VIEW — CAPACITOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.
AFC "Off" during FM alignment.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V8). Low side to chassis.	455KC (400∿Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1620KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	1400KC	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.05MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A7, A8, A9, A10, A11, A12	Adjust for maximum deflection.
5.	"	High side to pin 1 (grid) of 6AU6 (V6). Low side to chassis.	"	"	"	DC probe thru 1Meg to point Ⓑ. Common to chassis.	A13	"
6.	"	"	"	"	"	DC probe thru 1Meg to point Ⓒ. Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.05MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. thru 100K to point Ⓐ. Low side to chassis.	A7, A8, A9, A10, A11, A12	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	High side to pin 1 (grid) of 6AU6 (V6) . Low side to chassis.	"	"	"	Vert. Amp. thru 100K to point Ⓑ. Low side to chassis.	A13	"
6.	"	"	"	"	"	Vert. Amp. thru 100K to point Ⓒ. Low side to chassis.	A14	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A13 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	300Ω Carbon Resistor	Thru dummy to FM ant. terminals.	108MC	FM	108MC	DC probe to point Ⓐ. Common to chassis.	A15	Adjust for maximum deflection.
8.	"	"	106MC	"	106MC	"	A16, A17	Adjust for maximum deflection. Rock tuning gang while adjusting A16.

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L[illegible]SHIP
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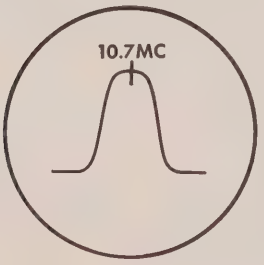


FIG. 1

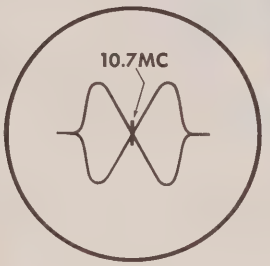
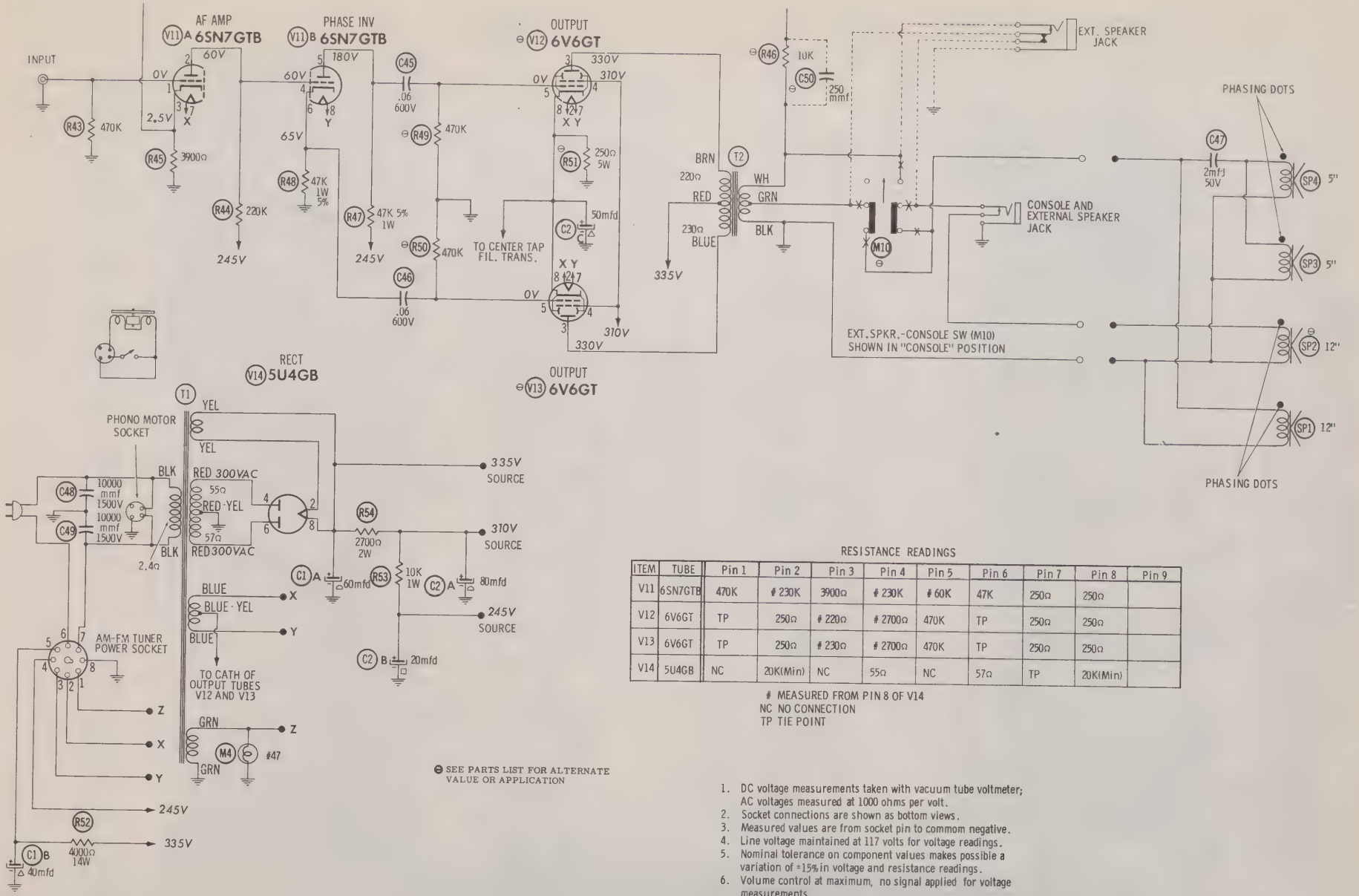


FIG. 2



RESISTANCE READINGS

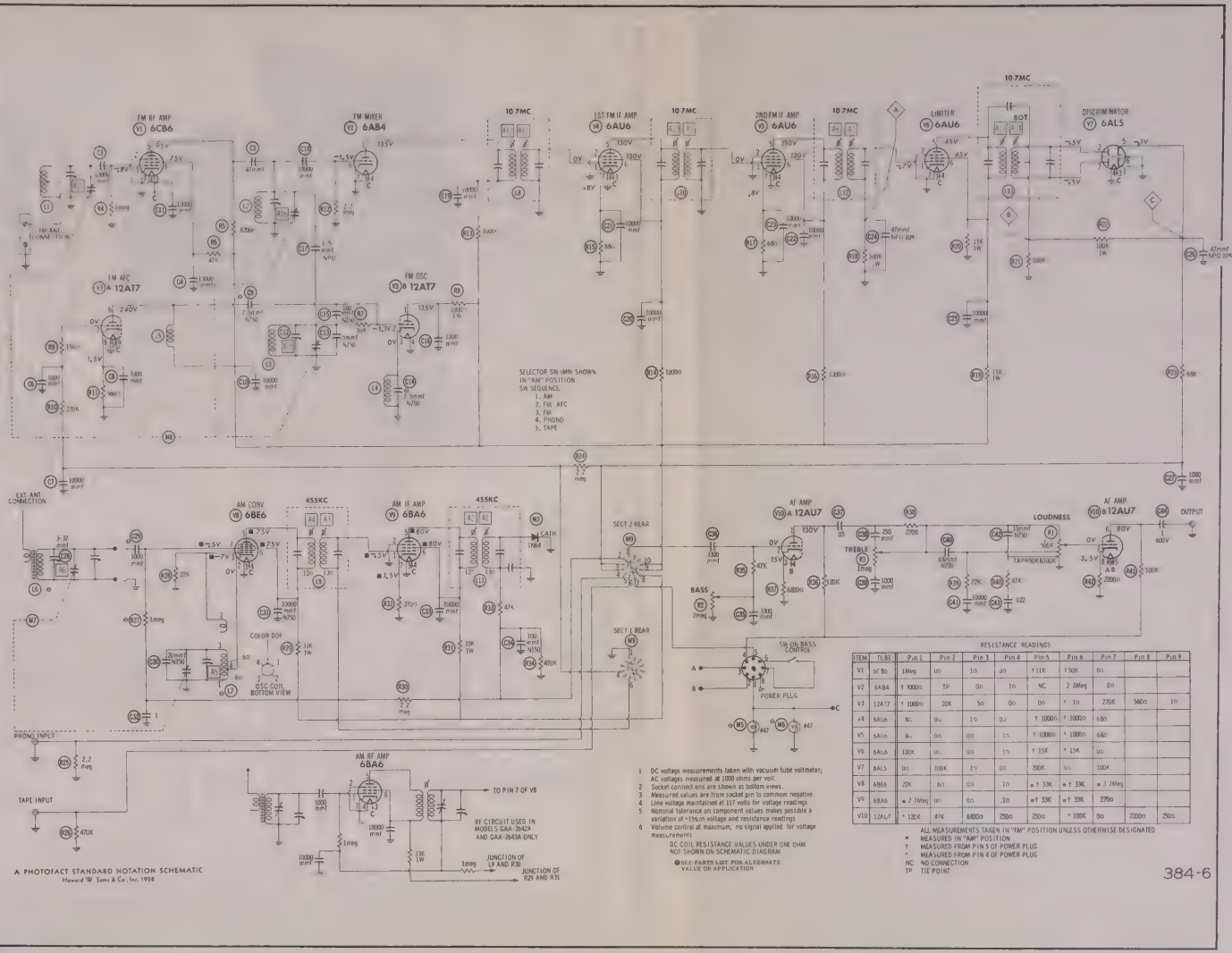
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V11	6SN7GTB	470K	# 230K	3900Ω	# 230K	# 60K	47K	250Ω	250Ω	
V12	6V6GT	TP	250Ω	# 220Ω	# 2700Ω	470K	TP	250Ω	250Ω	
V13	6V6GT	TP	250Ω	# 230Ω	# 2700Ω	470K	TP	250Ω	250Ω	
V14	5U4GB	NC	20K(Min)	NC	55Ω	NC	57Ω	TP	20K(Min)	

MEASURED FROM PIN 8 OF V14
NC NO CONNECTION
TP TIE POINT

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊕SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6	1Meg	0Ω	1Ω	0Ω	†11K	†50K	0Ω		
V2	6AB4	† 100Ω	TP	0Ω	1Ω	NC	2.2Meg	0Ω		
V3	12AT7	† 100Ω	10K	5Ω	0Ω	0Ω	† 1Ω	270K	560Ω	1Ω
V4	6AU6	8Ω	0Ω	1Ω	0Ω	† 100Ω	† 100Ω	68Ω		
V5	6AU6	8Ω	0Ω	0Ω	1Ω	† 100Ω	† 100Ω	68Ω		
V6	6AU6	100K	0Ω	0Ω	1Ω	† 15K	† 15K	0Ω		
V7	6AL5	0Ω	100K	1Ω	0Ω	220K	0Ω	100K		
V8	6BE6	22K	0Ω	0Ω	1Ω	⌀ † 33K	⌀ † 33K	⌀ 3.1Meg		
V9	6BA6	⌀ 2.7Meg	0Ω	0Ω	1Ω	⌀ † 33K	⌀ † 33K	270Ω		
V10	12AU7	* 120K	47K	6800Ω	250Ω	220Ω	* 100K	0Ω	7200Ω	250Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
⌀ MEASURED IN "AM" POSITION
† MEASURED FROM PIN 5 OF POWER PLUG
* MEASURED FROM PIN 4 OF POWER PLUG
NC NO CONNECTION
TP TIE POINT

384-6

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6CB6	
V2	FM Mixer	6AB4	
V3	FM Osc. - FM AFC	12AT7	
V4	1st FM IF Amplifier	6AU6	
V5	2nd FM IF Amplifier	6AU6	
V6	Limiter	6AU6	
V7	Discriminator	6AL5	
V8	AM Converter	6BE6	
V9	AM IF Amplifier	6BA6	
V10	AF Amplifier	12AU7	
V11	AF Amp. - Phase Inv.	6SN7GTB	
V12	Output	6V6GT	Note 1
V13	Output	6V6GT	Note 1
V14	Rectifier	5U4GB	

Note 1. Type EL84/6BQ5 used in models GAA-2642A & GAA-2643A

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲60	400	1002	AFH2-61	B0462	FP263	TMD-56	D-240	TVL-2770
B	▲40	400							
C2A	▲80	400	1003	AFH3-46	B0480	FP245.2	TMD-76	D-365	
B	■20	400			BR505	TC39	TD-20-450	MT-4520	
C	▲50	50							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	10000			SI 10000	D6-103	LT6S1	GP-10000	DC511	5HK-S1	
C4	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C5	47			SI 47	D6-470	LT6Q47	GP-47	UC-5447	5GA-Q47	
C6	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C7	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C9	7.5			N750-SI 7.5						N750 ①
C10	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C11	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C12										
C13	5			N750-SI 5	TCN-5	C10V5U	TC7-5	NT-555	5TCUB-V5	N750
C14	7.5			N750-SI 7.5						N750①
C15	100			N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750
C16	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C17	1.5			NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	5TCCB-V15	NPO
C18	10000			SI 10000	D6-103	LT6S1	GP-10000	DC511	5HK-S1	
C19	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C20	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C21	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	AIRLINE PART No.	NOTES
R42	2200Ω			
R43	470K			
R44	220K			
R45	3900Ω			
R46	10K			Note 1
R47	47K 5%	1		
R48	47K 5%	1		
R49	470K			Note 2
R50	470K			Note 2
R51	250Ω	5		Note 3
R52	4000Ω	14	635	
R53	10K	1		
R54	2700Ω	2		

Note 1. Some versions may use 15K in this application.
Note 2. Models GAA-2642A & GAA-2643A use 270K in this application.
Note 3. Models GAA-2642A & GAA-2643A use 150Ω 5W in this application.
Note 4. Not used in models GAA-2642A and GAA-2643A

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RATING SEC. 4	REPLACEMENT DATA AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1A	620VCT @ .130A	5VAC @ 3A	6.3VCT @ 1.74A	6.3VAC @ 3A	1107				22R32	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6400Ω	3-4Ω Tap@ 1.6Ω	1212				A-3870		

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C22	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C23	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C24	47			NPO-SI 47	TCZ-47	C10Q47C	TCO-47	ZT-5447	5TCC-Q47	NPO 10%
C25	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C26	47			NPO-SI 47	TCZ-47	C10Q47C	TCO-47	ZT-5447	5TCC-Q47	NPO 10%
C27	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C28	3-32									
C29	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	②
C30	20			N750-SI 20	TCN-20	C10Q2U	TC7-20		5TCU-Q2	N750
C31	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C32	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C33	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C34	100									N150
C35	3300			BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C36	3300			BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33	
C37	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C38	250			BPD-00025	DD-251	L10T25	ED-250	UC-5325	5GA-T25	
C39	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C40	68									N220
C41	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C42	33		908	N750-SI 33	TCN-33	C10Q33U	TC7-33		5TCU-Q33	N750
C43	.022	400		BPD-02	DD-203	CUB4S22		GEM-4122	4TM-S22	
C44	.1	600		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C45	.06	600		P688N-06		CUB6S6		GEM-616	6TM-S6	
C46	.06	600		P688N-06		CUB6S6		GEM-616	6TM-S6	
C47	2.0	50	830							
C48	10000	1500		DAC-01		HVE16S1		GEM-1611	BL-S10	
C49	10000	1500		DAC-01		HVE16S1		GEM-1611	BL-S10	
C50	250			BPD-00025	DD-251	L10T25	ED-250	UC-5325	5GA-T25	③

① Some versions may use 10MMF, N750, 5% in this application.
② Some versions may use 47MMF, NPO, 10% in this application.
③ Used only in Models GAA-2642A and GAA-2643A.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	422					Loudness, Tap ② 50K & 100K
R2A	2Meg	½	412A	B-76	A47-2Meg-Z	Q13-139	U55	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R3A	1Meg	½	421	B-69	A47-1Meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	AIRLINE PART No.	NOTES
R4	1Meg			
R5	8200Ω			
R6	47K			
R7	10K			
R8	1000Ω	1		
R9	150Ω			
R10	270K			
R11	560Ω			
R12	2.2Meg			
R13	1000Ω			
R14	1000Ω			
R15	68Ω			
R16	1000Ω			
R17	68Ω			
R18	100K	1		
R19	15K	1		
R20	15K	1		
R21	100K			
R22	100K	1		
R23	68K			
R24	2.2Meg			
R25	2.2Meg			
R26	470K			
R27	1Meg			Note 4
R28	22K			
R29	33K	1		
R30	2.2Meg			
R31	33K	1		
R32	270Ω			
R33	47K			
R34	470K			
R35	47K			
R36	120K			
R37	6800Ω			
R38	270K			
R39	22K			
R40	47K			
R41	100K			

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA AIRLINE PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	12"	PM	3-4Ω	2635 ①	12A4A ①	① Parallel and Phase
SP2	12"	PM	3-4Ω	2636 ①②	12A6A ①	② Part #2639 (10") used in Models GAA-2642A, GAA-2643A
SP3	5"	PM	6-8Ω	2637 ①	5A1Z7R ①	
SP4	5"	PM	6-8Ω	2637 ①	5A1Z7R ①	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA AIRLINE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	1411B				
L2	FM RF Coil	1411A				
L3	FM Osc. Coil	1411				
L4	Cathode Choke	1303	19-1000	BC-561	4602	1 Microhenry; IRC Part #CLA
L5	RF Choke	1303	19-1000	BC-561	4602	1 Microhenry; IRC Part #CLA
L6	Loop Stick	1512E ①		BC-418		
L7	AM Osc. Coil	1401A ②		BC-393		
L8	1st FM IF	1409	16-3487	FM-254	1463	
L9	1st AM IF	1405	16-6758	BC-352	12-C1	
L10	2nd FM IF	1409	16-3487	FM-254	1463	
L11	2nd AM IF	1406A	16-6758	BC-353	12-C2	
L12	FM Limiter	1409	16-3487	FM-254	1463	
L13	Discriminator	1410	17-3494	FM-253	1464	

① Part #1512F includes trimmer. (Models GAA-2620A & GAA-2621A only)
② Part #1401B used in models GAA-2642A & GAA-2643A.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA AIRLINE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	60-51	*81-TBX		56DS	PT-2	Models GAA-2620A & GAA-2621A
	60-54	*81-TBX		56DS	PT-2	Models GAA-2642A & GAA-2643A

* Includes turn-under lever and mounting bracket.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA AIRLINE PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2				

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA AIRLINE PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M3	1N64		1N64	1N64	AM Detector (Pigtail)

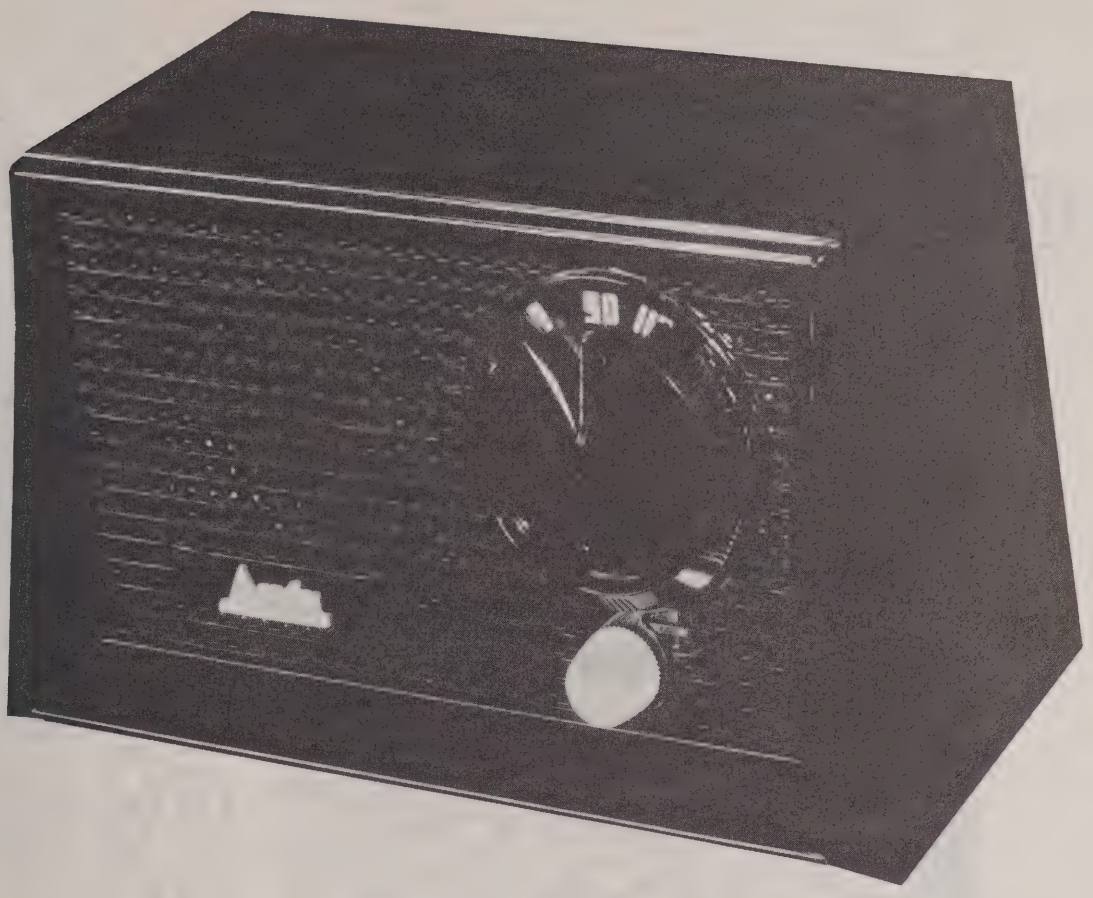
MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M4	Indicator Lamp		#47
M5	Pilot Lamp		#47 (Models GAA-2642A & GAA-2643A use #12)
M6	Pilot Lamp		#47 (Models GAA-2642A & GAA-2643A use #12)
M7	Tuning Cap.	1004A	AM (2 Gang, Ant. 15-390MMF, Osc. 18-190MMF)
M8	Tuning Cap.	1021	FM, 4 Gang
M9	Switch	420A	Selector, Rotary Wafer Type
M10	Switch		Speaker Selector (Slide Type DPDT) (Models GAA-2620A & GAA-2621A only)

PHOTOFACT* Folder
*TRADE MARK

ARVIN MODEL 950T2 (Ch. 1.43400)

ARVIN MODEL 950T2 (Ch. 1.43400)



ARVIN MODEL 950T2 (Ch. 1.43400)

TRADE NAME	Arvin Model 950T2 (Ch. 1.43400)
MANUFACTURER	Arvin Industries, Inc., Columbus, Indiana
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC
RATING	.27 Amp. @ 117 Volts AC (28 Watts)
TUNING RANGE—BROADCAST	540KC-1670KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400%Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1670KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A6	"

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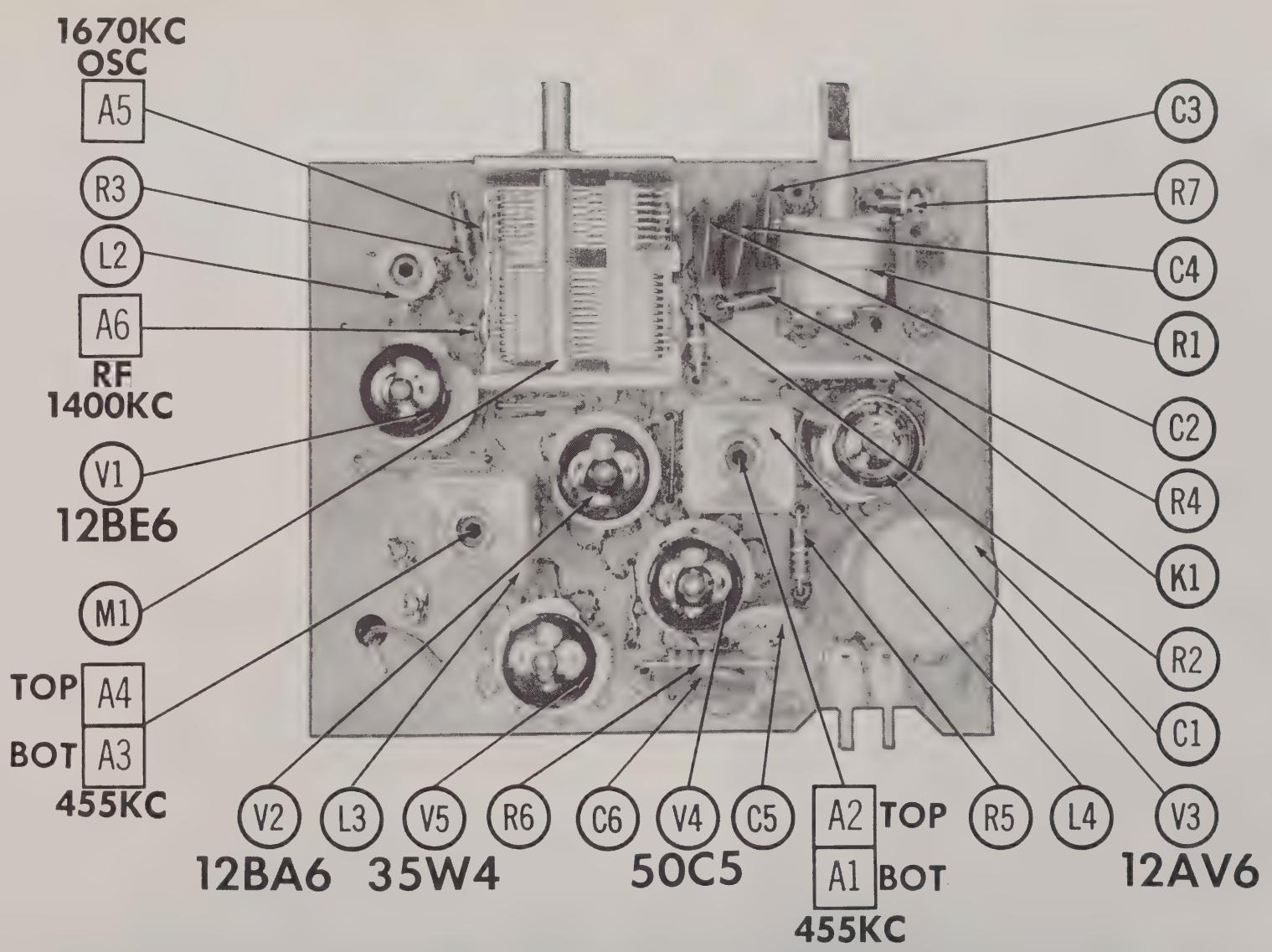
H323

FOLDER 7



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det.-AVC-AF Amp.	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■50	150	43672	AFH2-15-05	BBRD5315	PFP213.1	TDLD-8	MTD-301	TVA-2450
B	▲30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C3	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C4	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C5	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ARVIN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	43671					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ARVIN PART No.	NOTES
R2	100K			
R3	22K			
R4	2.2Meg			
R5	120Ω			
R6	1200Ω	1		
R7	330K			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ARVIN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2600Ω	3-4Ω	42700-16 ①	Z1101	A-3025	A-3332	24S53	S-12X	① Alternate Part #42700-11

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ARVIN PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	43096	4A07	① Alternate Part Number
	4"	PM	3-4Ω	44888 ①	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ARVIN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Ant.	43691-3				Includes Cabinet Back
L2	Osc. Coil	43644-1				
L3	Input IF	44282-1				
L4	Output IF	44282-1				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ARVIN PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	5000MMF, 220MMF, 5000MMF, 250MMF, 6.8Meg, 470K, 470K	43743-2	Aerovox PA-512 Centralab PC-158 Sprague DT-5

MISCELLANEOUS

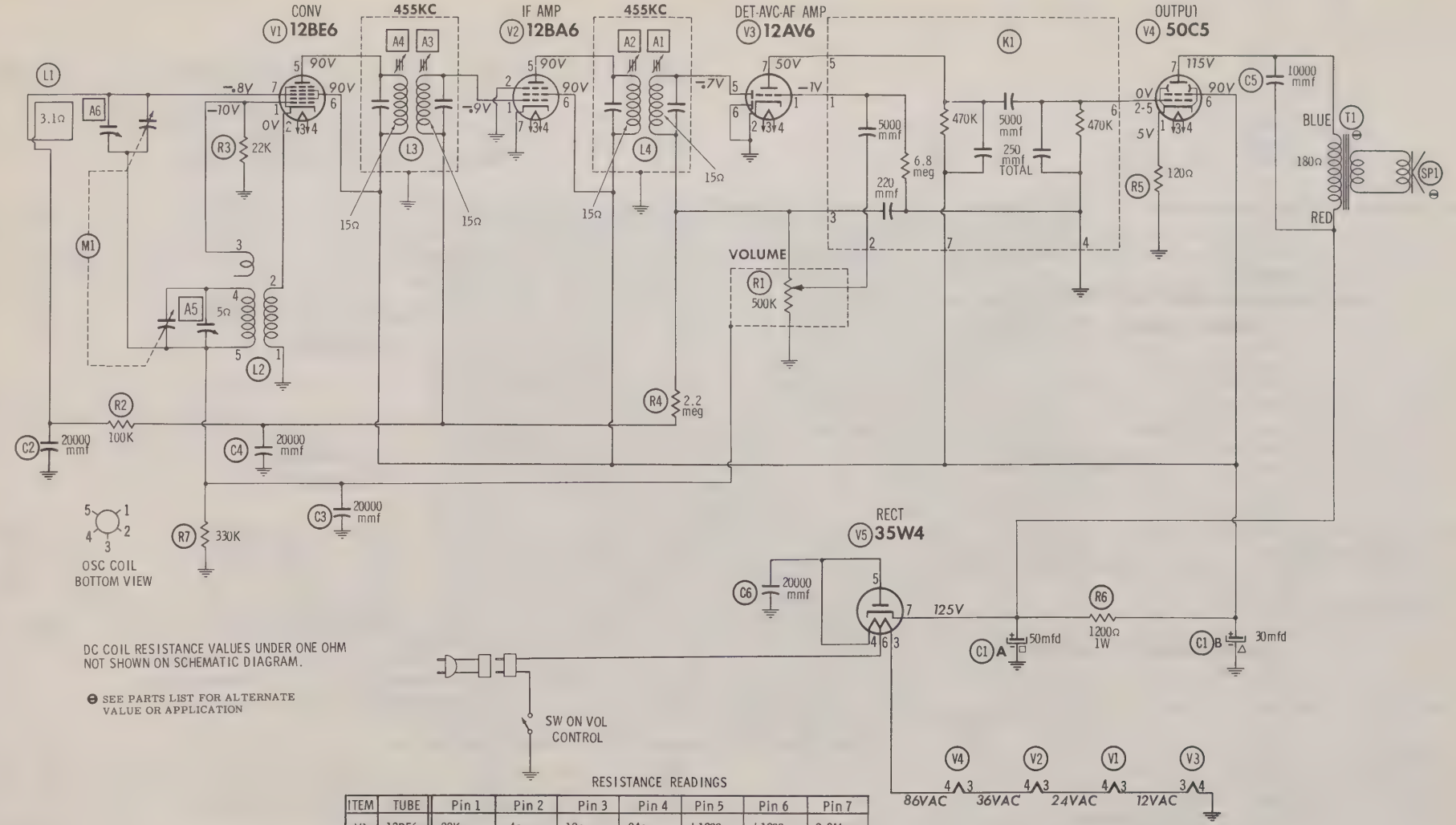
ITEM No.	PART NAME	ARVIN PART No.	NOTES
M1	Tuning Cap.	43987	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	43110-67	On-Off-Volume
Knob	43111-29	Tuning
Cabinet	43715-29	Black

PROPERTY OF
DEALER SHIP
ARVIN, COLORADO



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.4Ω	12Ω	24Ω	†1200Ω	†1200Ω	2.8Meg
V2	12BA6	2.7Meg	0Ω	24Ω	36Ω	†1200Ω	†1200Ω	0Ω
V3	12AV6	6.8Meg	0Ω	12Ω	0Ω	500K	0Ω	†470K
V4	50C5	120Ω	470K	36Ω	86Ω	470K	†1200Ω	†180Ω
V5	35W4	TP	TP	86Ω	120Ω	120Ω	110Ω	20K(Min)

† MEASURED FROM PIN 7 OF V5
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

CRESCENT MODELS A-699, A-699B

CRESCENT MODELS A-699, A-699B

CRESCENT MODELS A-699, A-699B

TRADE NAME	Crescent Models A-699, A-699B
MANUFACTURER	Crescent Industries, 7300 N. Lehigh Ave., Chicago 31, Illinois
TYPE SET	AC Operated Phono Amplifier With 3 Speed Automatic Record Changer
TUBES (Three)	Types 12AX7 AF Amplifier, 35L6GT Output, 50Y6GT Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles RATING .35 Amp. @ 117 Volts AC (35 Watts Without Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE CRESCENT MODEL C607-PHOTOFACT SET 374 FOLDER 4

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AX7	
V2	Output	35L6GT	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	50Y6GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CRESCENT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	250	770107			FP212		T-090	R2484 *
B	▲40	150				TC58		MT-1540	
C	40	150							
C2	40	150	770108	PRS150V40	BR4015	TC48	TD-40-150	MT-1540	TVA-1413

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CRESCENT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.1	400	770057	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C4	5000		770109	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C5	100		770112	NPO-DI 100	DD-101	L10T1	ED-100	ZT-531	5TCC-T1	10%
C6	1500					1R5D15	ED-1500	MCB456	MS-215	① 10%
C7	5000		770109	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C8	20000		770092	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C9	20000		770092	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C10	2000		770106			1R5D2		MCB457	MS-22	10%
C11	.1	400	770007	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	

① Some versions may use 2000MMF in this application (Part #770106).

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CRESCENT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1Meg	½	740059					Volume, Tap ③ 250K
R2	2Meg	½	740060					Bass
R3	2Meg	½	740060					Treble

RESISTORS

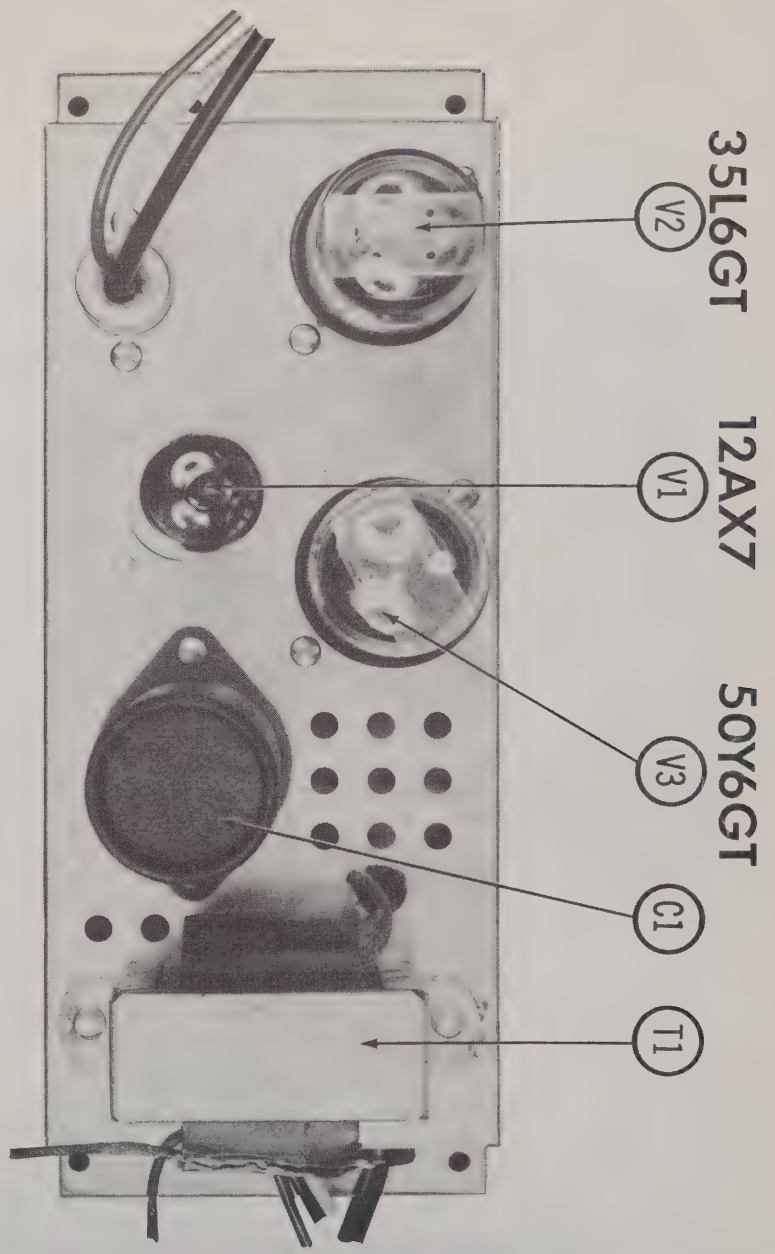
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	CRESCENT PART No.	NOTES
R4	47K		760013	
R5	100K		760060	
R6	33Ω			Note 1
R7	100K		760060	
R8	1500Ω		760003	
R9	100K		760060	
R10	100K		760060	
R11	2200Ω		760047	

ITEM No.	RATING OHMS	RATING WATT	CRESCENT PART No.	NOTES
R12	470K		760037	
R13	9000Ω	5	760307	
R14	10K	5	760308	
R15	150Ω		760023	
R16	15K			Note 2
R17	33Ω	1	760111	
R18	120Ω	5	760302	
R19	1Meg			Note 1

Note 1. Not used in some versions.
Note 2. Some versions use a 15K 5W in this application (Part #760027).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	CRESCENT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	5400Ω	2Ω	700070	Z 1007	A-2902	A-3849	26S46		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CRESCENT PART No.	QUAM PART No.	
SP1	6" X 9"	PM	3-4Ω	012492	6A31	① Connect in series and phase.
SP2	5"	PM	3-4Ω	012491 ①	5A15 ①	
SP3	5"	PM	3-4Ω	012491 ①	5A15 ①	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	CRESCENT PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	720044	55-T or 81-TB	GD-J	56	PT-1	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

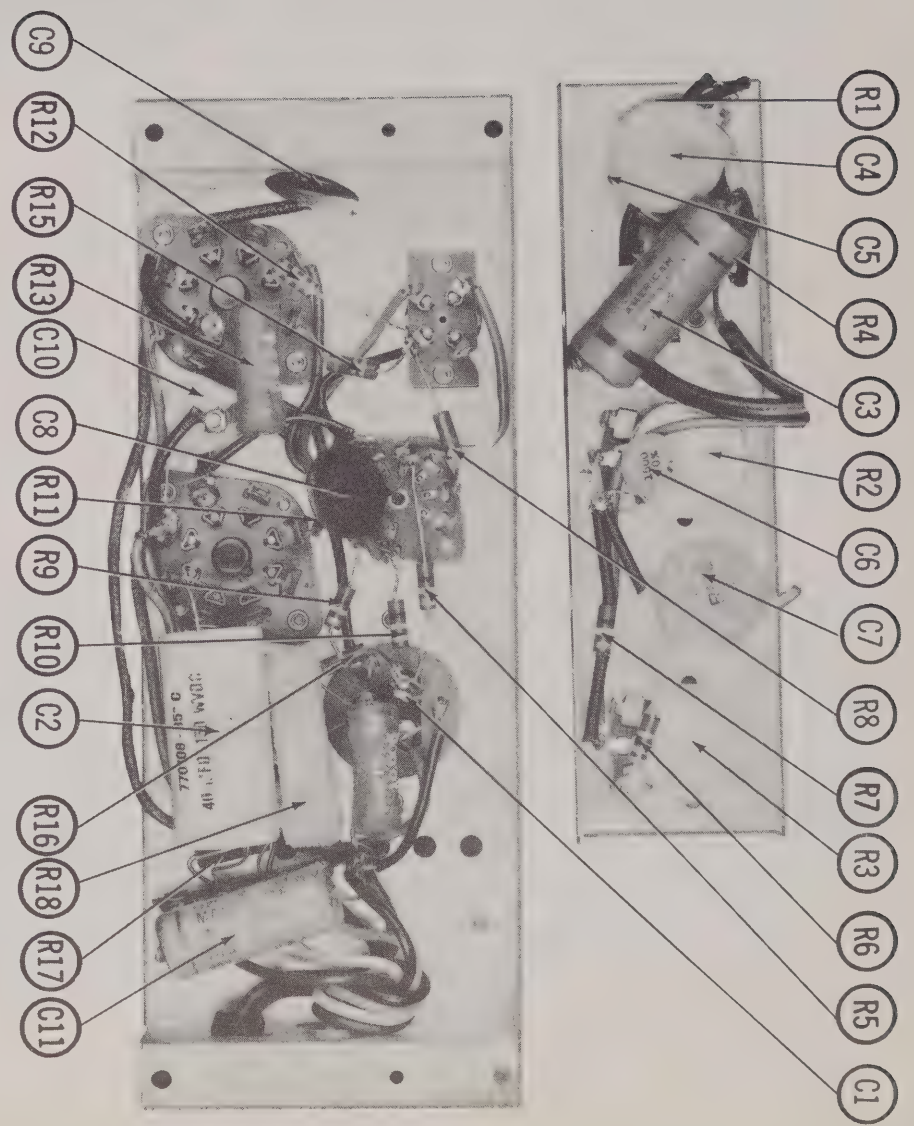
ITEM No.	REPLACEMENT DATA			REMARKS
	CRESCENT PART No.	JENSEN PART No.	WALCO PART No.	
M2	720055	† S-66 or †♦ S-66SD or ♦ S-66D	† W75TPS or †♦ W75DS or ♦ W75TPD	† Jewel ♦ Diamond

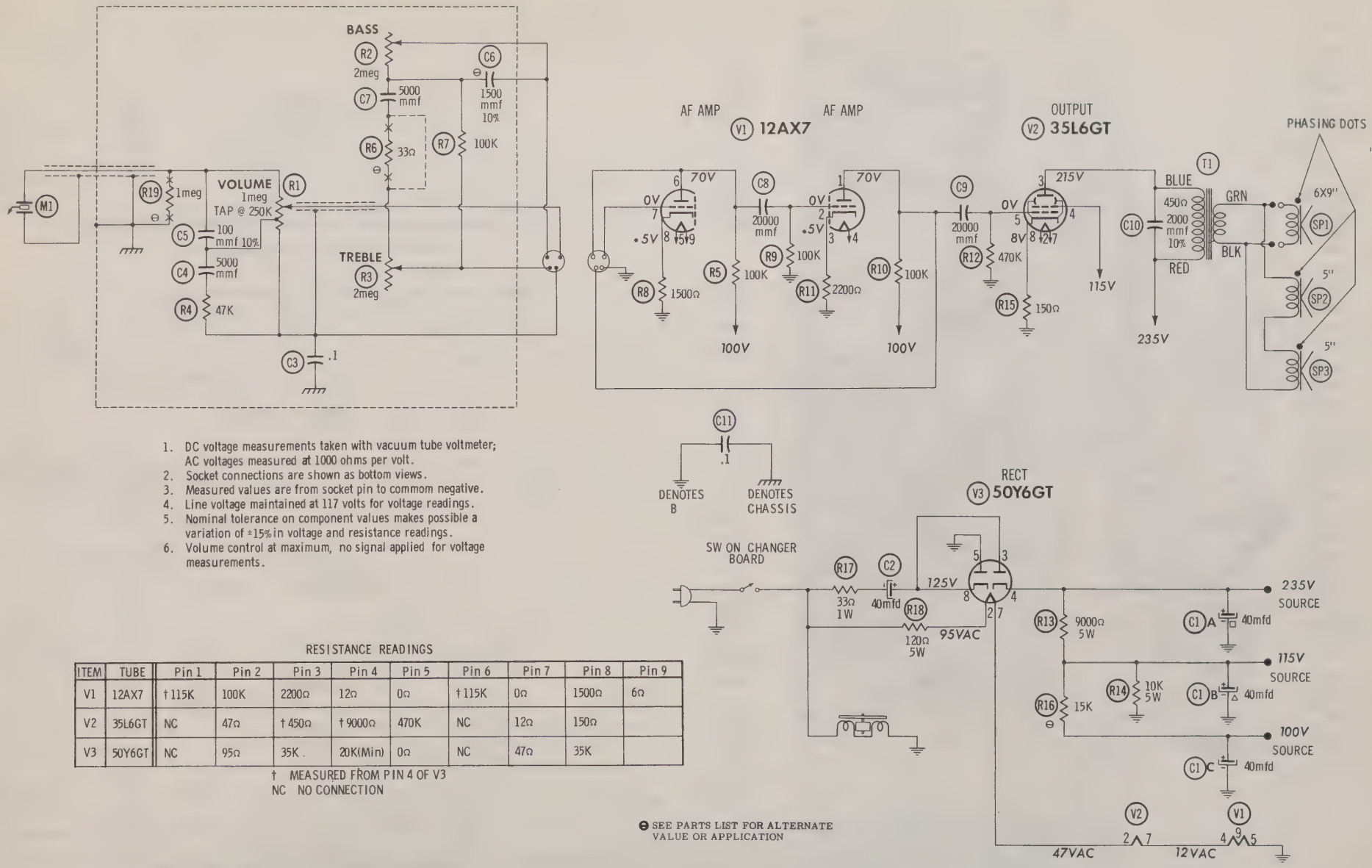
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	310347	Treble
Knob	310349	Bass
Knob	310350	Volume
Knob	310334	On-Off-Reject
Knob	310330	Motor Speed
Cabinet	440236	Mahogany (Model A-699)
Cabinet	440275	Blonde (Model A-699B)

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†115K	100K	2200Ω	12Ω	0Ω	†115K	0Ω	1500Ω	6Ω
V2	35L6GT	NC	47Ω	†450Ω	†9000Ω	470K	NC	12Ω	150Ω	
V3	50Y6GT	NC	95Ω	35K.	20K(Min)	0Ω	NC	47Ω	35K	

† MEASURED FROM PIN 4 OF V3
NC NO CONNECTION

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

GELOSO
MODEL G255-S

GELOSO
MODEL G255-S

GELOSO
MODEL G255-S

GENERAL INFORMATION

Model G 255-S Geloso Tape Recorder features push-button controls for Record, Rewind, Play and Stop. The Recorder is designed to record and play back two tracks of material on standard 1/4-inch wide recording tape, which doubles the playing time of a 3-inch or 3 1/4-inch reel. Recordings can be played back through the self-contained speaker or an external speaker.

This Recorder has two tape speeds, 1 7/8" and 3 3/4" per second.

Using both tracks, the recording time for 3 3/4" per second is 30 minutes with normal tape and 45 minutes with thin tape; at 1 7/8" per second, it is an hour with normal tape and an hour and 30 minutes with thin tape.

The Recorder is designed to operate on AC 60 cycle 110, 125, 140, 160, or 220 volts. The voltage adjustment is made by inserting the two-prong shorting link into the holes marked for the desired voltage which is accessible through an opening in the bottom of the cabinet. The one marked 110 volt is satisfactory for the voltage range of 110 to 117 volts.

Supplied by:

American Electronics Inc.
312 Seventh Ave.
New York 1, New York

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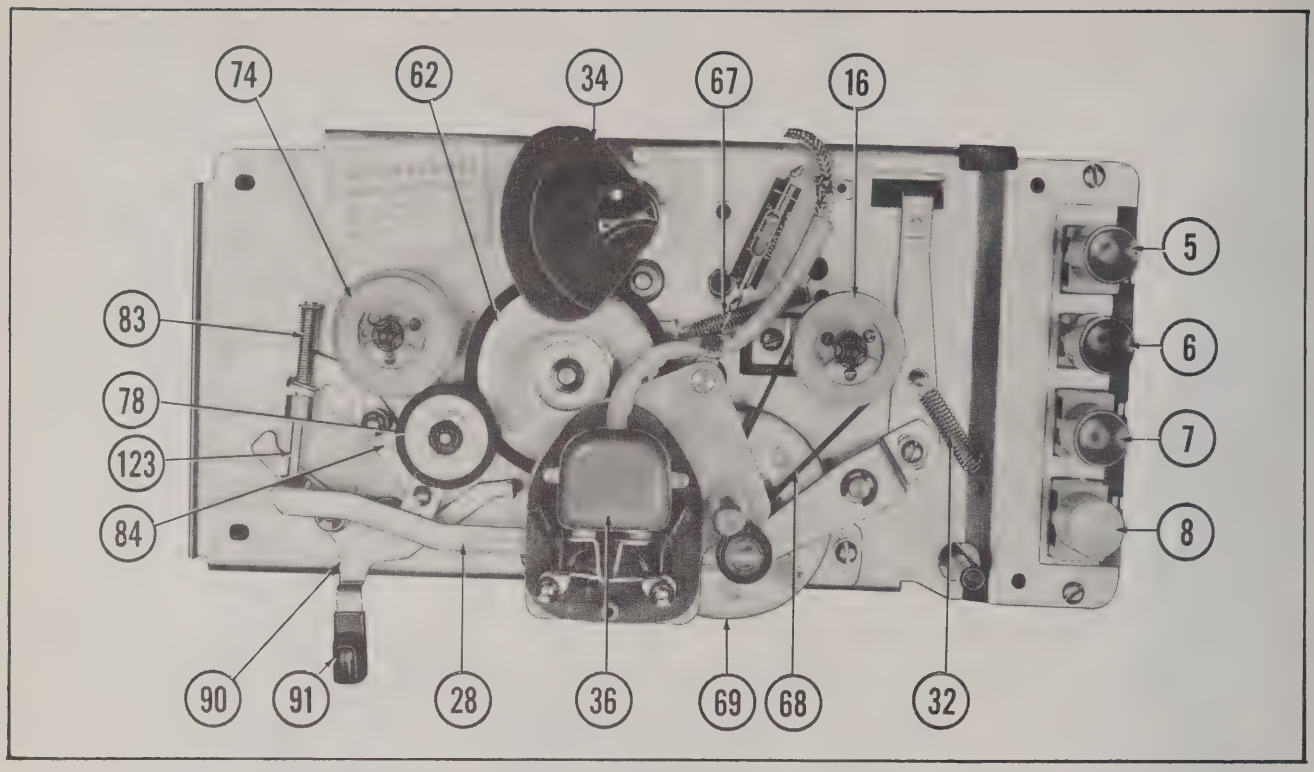


FIG. 1

OPERATING INSTRUCTIONS

1. With the On-Off switch in the off position, plug the AC cord into a convenient wall receptacle of the proper rating.

Threading the Tape

1. Place a reel of tape on the left reel bobbin (74) and an empty reel on the right reel bobbin (16) making sure the nicks of the reel slip completely into the guide ledges of the drive shafts.

2. With the thumb of the left hand (see fig. 1) hold completely to the left side the rapid advance lever in front of the set.

3. With the other hand, thread the tape into the slot of the recording head and between the two drive rollers.

4. Attach the tape to the empty reel at the right-hand side and turn this reel by hand for two or three complete revolutions, always pressing the rapid advance lever completely to the left.

Alternate Method

1. Press the yellow rewind push-button. This action frees the slot of the recording head and opens the two drive rollers.

2. If the recorder is on, turn the speed selector switch to neutral (position between the red and the white dot).

3. Place the full reel for play-back or recording on the left drive shaft and the empty reel on the right drive shaft, making sure the nicks of the reels slip completely on the guide ledges of the drive shafts.

4. Thread the tape into the slot of the recording head and between the two drive rollers.

5. Attach the tape to the empty reel at the right-hand side. Turn this reel by hand for two or three complete revolutions. Press the back stop push-button and turn the speed selector switch to the desired position.

6. Close the transparent dust cover (1).

To Record From Microphone

1. Insert the microphone plug into the "Microphone Input Jack".

2. Turn the Recorder on by rotating the volume control knob (4) clockwise. Bring the index line on the knob to the red spot on the transparent cover; this is a good average setting.

3. Turn the speed control knob (34) to the desired speed.

4. Hold the microphone 6 or 8 inches from your mouth, press the red, Record Button, and start talking in a normal tone. Watch the indicator light; if it flickers as you talk, the volume control setting is about correct. If it doesn't flicker at all, it is too low. If it blinks out, the setting is too high or you are talking too loud.

To Record From External Radio or Television Receiver

Recordings can be made from a radio or television by placing the microphone near the loudspeaker; however, this type of recording may not be satisfactory as other sounds may be picked up by the microphone which as a result will be recorded on the tape. A superior quality recording can be made by using the Geloso No. 9009 Radio Pick-up. Connect attachment as follows:

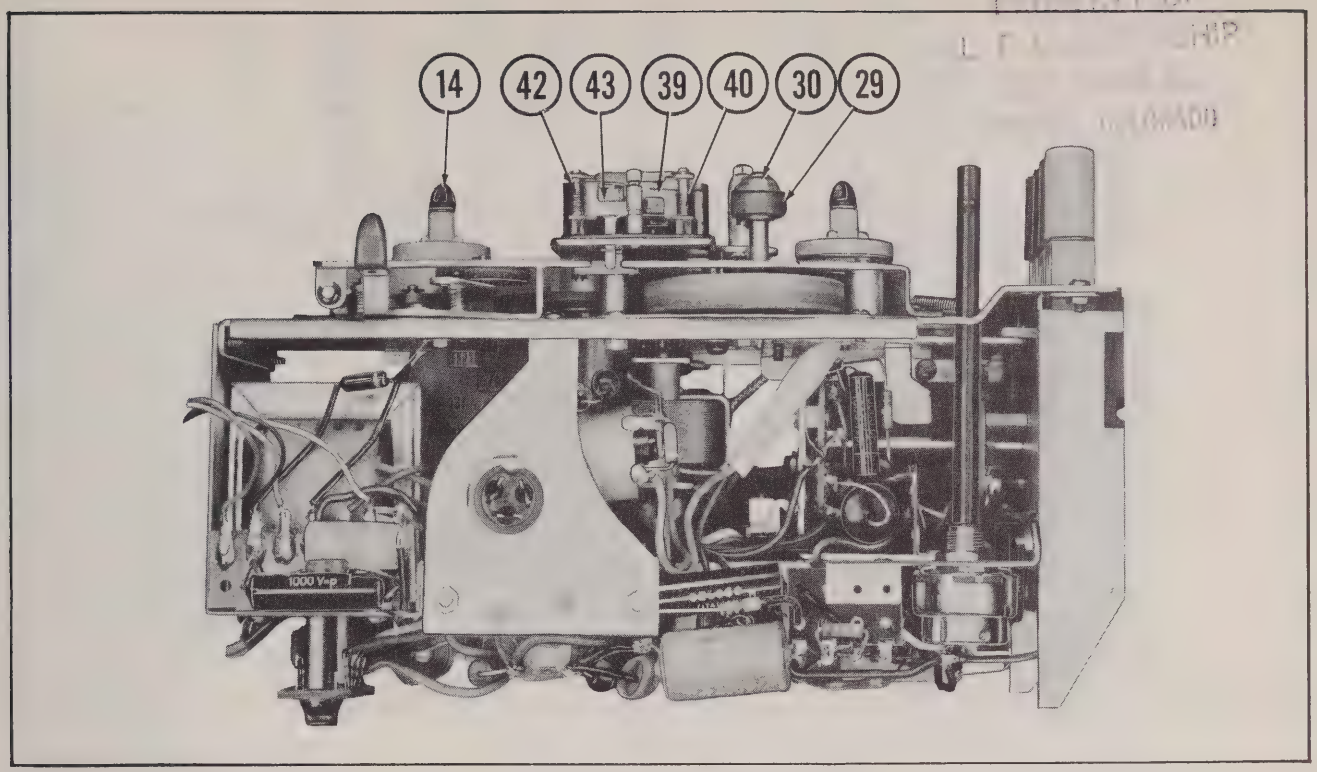


FIG. 2

1. Insert the plug in the "Micro" jack on the back of the recorder.

2. Experiment with the position of the coil on various faces or sides of the audio output transformer until the best volume of recording is noted. Hold it in position with a piece of sticky tape.

3. Proceed as described in "To Record From Microphone".

Dual Track Recording

The Geloso Recorder is designed so that 1/2 the tape width is recorded at a time; thereby resulting in two track recording. This two track operation is accomplished in the following manner:

1. After a reel of tape has been recorded, all of the tape wound onto the take-up reel, depress the "Stop", black, push-button. This stops all movement of the tape.

2. Remove the reels from the recorder, turning the full reel over and placing it on the left reel bobbin and the empty reel on the right reel bobbin.

3. Properly thread the tape and proceed with the recording as in "To Record From Microphone".

4. After this track has been recorded the first track of recording is ready to be played without rewinding.

(a) Place the full reel of tape on the feed reel (left reel bobbin) and the empty reel on the take-up reel (right reel bobbin).

(b) Thread the tape making sure the dull side of the tape faces the record head.

(c) Set the controls as described under "To Play a Recording"

To Play A Recording

1. Thread the tape as described under "Threading the Tape".

2. Turn the On-Off Volume control on and allow sufficient time for the tubes to warm up.

3. Depress the "Play" "Green" push-button.

4. Adjust the Volume control to suit.

To Edit and Splice Tape

NOTE: Since it is impossible to edit and splice one track without affecting the other, recordings which are to be edited should be limited to one track only.

1. The tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements may be inserted between selections, etc. Unused sections of tape can be spliced together for re-use.

2. For best results, cut tape at a slight diagonal, join ends together with splicing tape on the glossy side and trim off any excessive width.

Fast Forward And Rewind

High-speed forward can be obtained by pressing "The Rapid Advance" and rewind by pressing the "Yellow" push-button. These are used primarily in locating a desired portion of a recording in a few seconds.

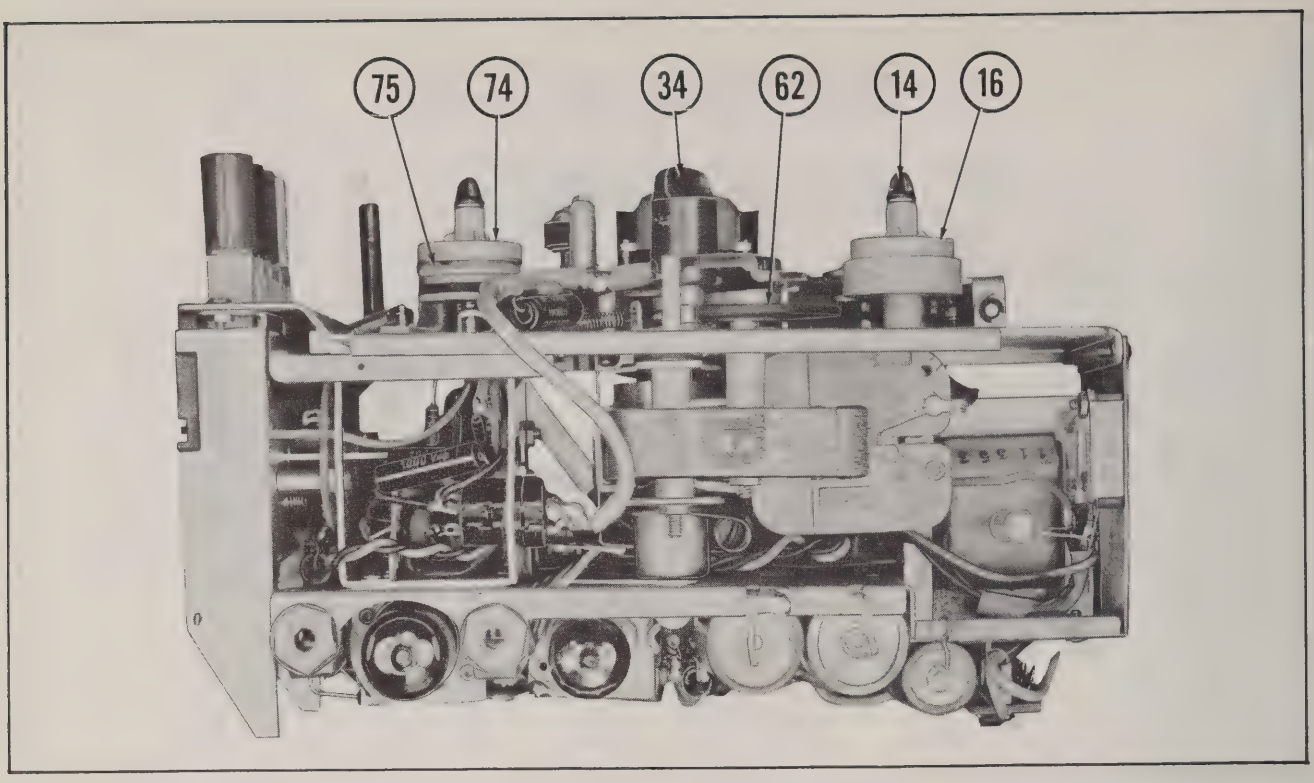


FIG. 3

CAUTION: The "Stop" "Black" button should always be depressed when the Recorder is not in use.

Erasing Recorded Material

Erasing of recorded material takes place automatically when new material is recorded; therefore, no special step is necessary to erase recordings before new recordings are make. If a portion of a recording or an entire reel of tape is to be completely erased, do so as follows:

1. Properly thread the tape on the machine.

2. Turn the Volume control knob clockwise until a click is heard. This turns the recorder on.

3. Press down on the Record button, "Red", and the erasing of recorded material is now in process and may be stopped at any time by depressing the Rewind "Yellow", Play "Green", or Stop "Black" button.

NOTE: Only one track of recorded material is erased at a time. To erase the second track, reverse the reels and repeat the above operation.

ADJUSTMENTS

Disassembly Instructions

1. Remove the two screws on the underside of the case.

2. Remove the push-on type volume control knob.

3. Remove the four screws in the top corners of the cabinet.

4. Remove the rear section of the cabinet.

5. Lift front section of cabinet away from the chassis far enough to disconnect the speaker and then remove front section.

Record-Play Head Adjustment

To adjust the record-play head (36) for maximum frequency response, make the following adjustment:

1. Remove Recording Head Cover (3).

2. Properly thread a 5000 cycle alignment tape on the machine.

3. Set the controls as described under "To Play A Recording".

4. Connect a millivoltmeter to the output jack.

5. Adjust the right hand screw (45) until you get the maximum output.

6. Replace Recording Head Cover (3).

CLEANING

The record head is subject to an accumulation of tape coating residue, which is worn off the tape as it passes over it. Use a soft cloth and alcohol to clean the head surfaces.

LUBRICATION

Once a year, put two drops of machine oil on the motor bearings. The cork disc clutch of the shaft that carries the right reel should begiven a thin coating of low viscosity grease. Examine the rubber parts for oil, and if necessary clean them with a dry rag.

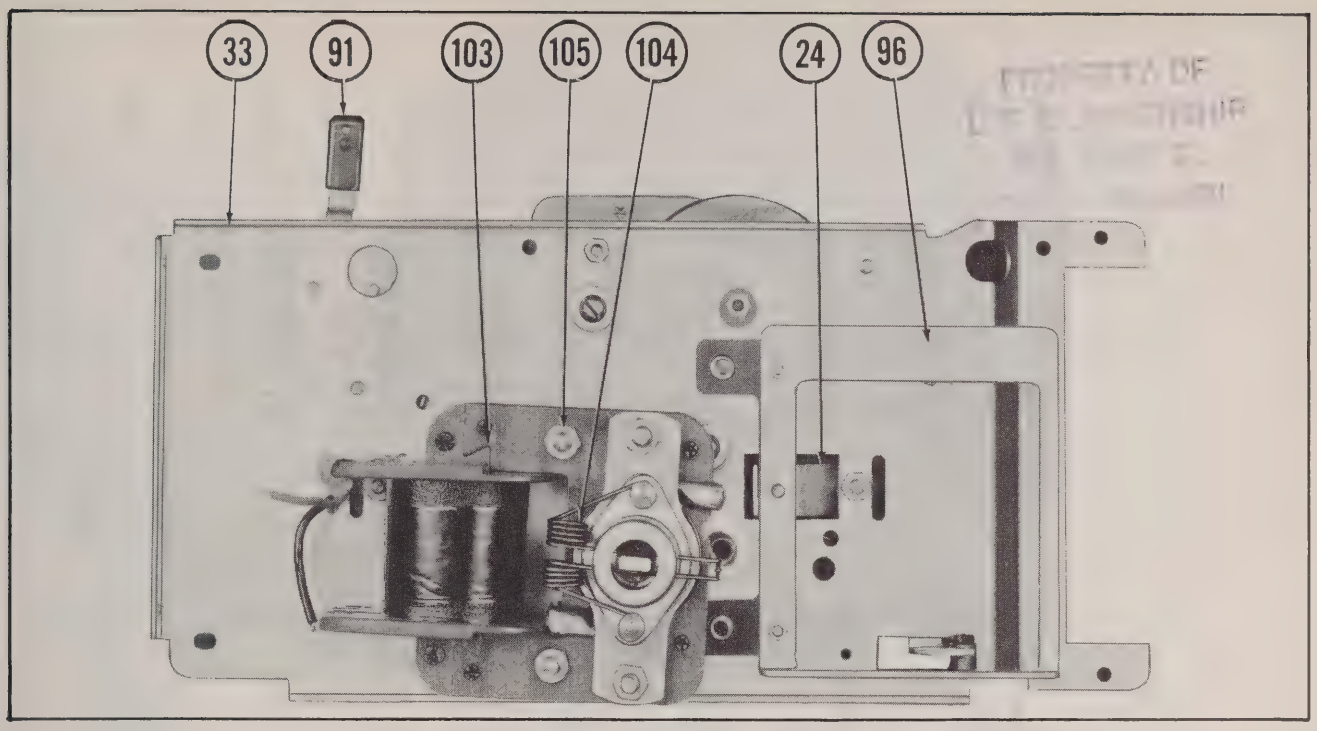


FIG. 4

TROUBLE CHART

Sympton	Cause	Remedy
Reels do not turn in play or record position. Background noise in play position. Indicator light on.	Motor Rotor Stuck.	Insert thin screw-driver through rear grill and push rotor to start. (counter-clockwise direction when viewed from top).
Low Output	Bad 35D5 or 12AX7 Tube.	Replace Defective tube.
	Recording head misaligned.	See Record-Play head adjustment.
Irregular Reel Speed.	Loose Nylon Flywheel Bearing.	Tighten Screw and Locknut.
	Grease on Rubber Edged Drive wheels.	Wipe clean with Carbon Tetrachloride on soft cloth.
Uneven Low Speed Operation	Lack of Spring Tension under Cork Clutch Disc.	Stretch Spring (22) to give it more tension.
Reels turn, Indicator flickers while recording but will not play back.	Bad Speaker or Audio Output Transformer.	Connect Auxiliary Speaker to output jack to bypass Speaker in set, or check for continuity and shorts in transformer.
Does not record or play. Reels turn and indicator lights.	Dead or Cracked 12AX7 or 35D5 tube.	Replace defective tube.
Does not record. Reels turn but indicator does not light.	Transformer loose from chassis breaking Orange Filament Lead.	Remount Transformer, soldering the mounting lugs to the chassis. Splice broken filament lead.
Reels rewind only.	Broken Drive Belt (68).	Replace Belt by first removing bottom screw above Osc. Coil and F. H. Brass Screw on top.
Not Operating. (Reels not turning. No backgound Speaker Noise in play position. No indicator light.	Bad A. C. Plug.	Replace Plug.
	No voltage selector link or link on wrong voltage.	Put Link in proper position.

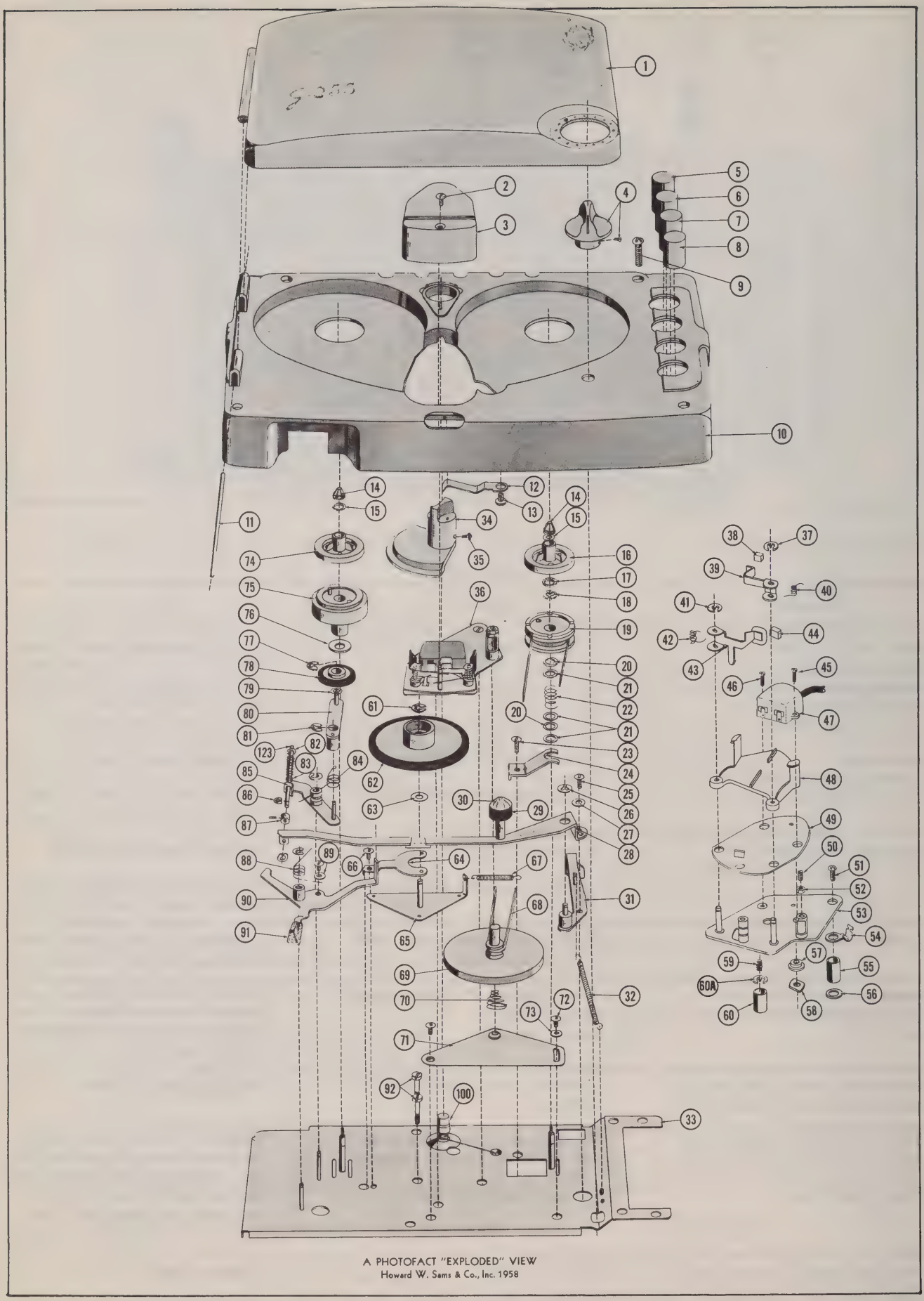
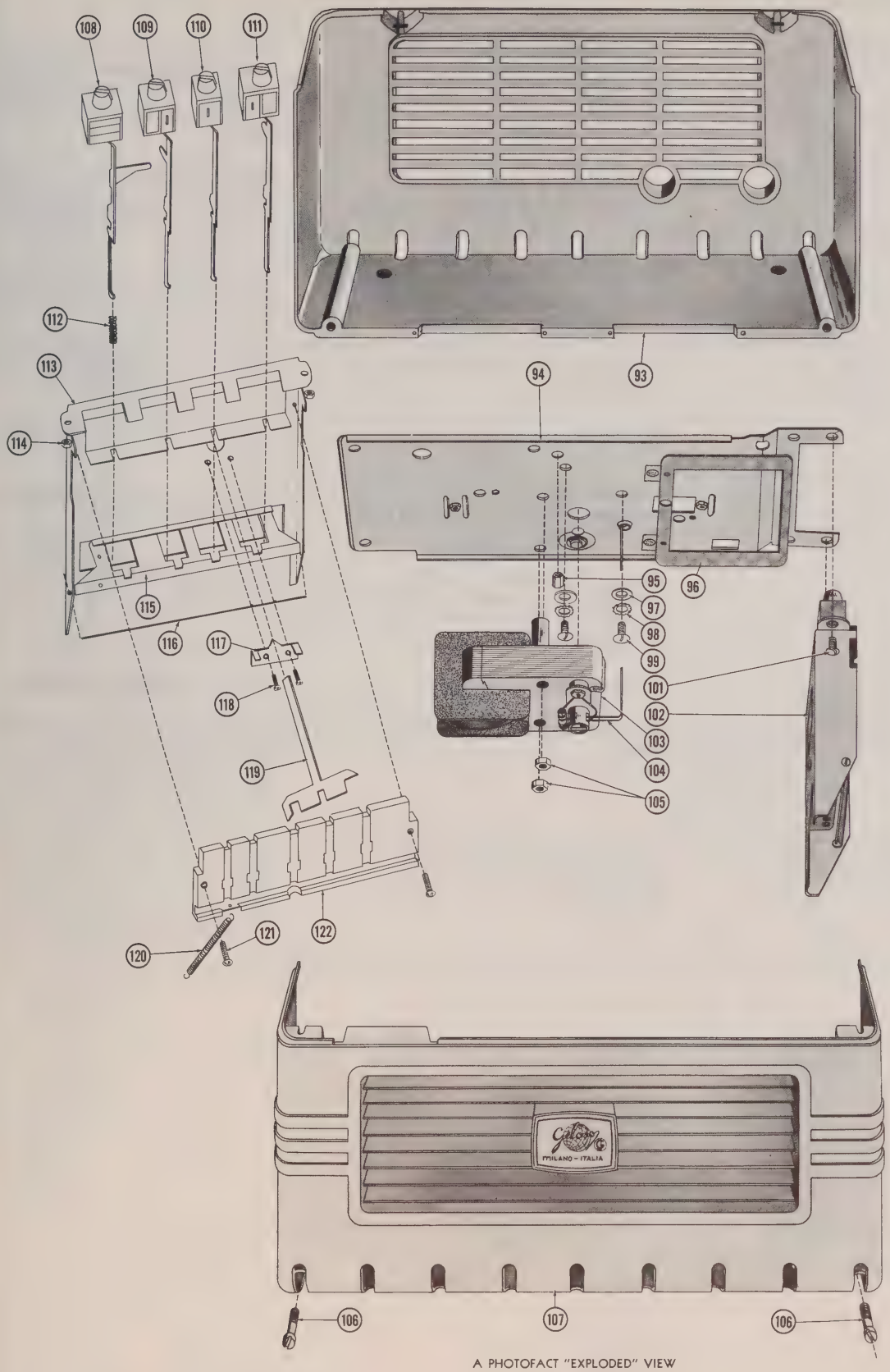


FIG. 5A EXPLODED VIEW OF PARTS ABOVE BASEPLATE

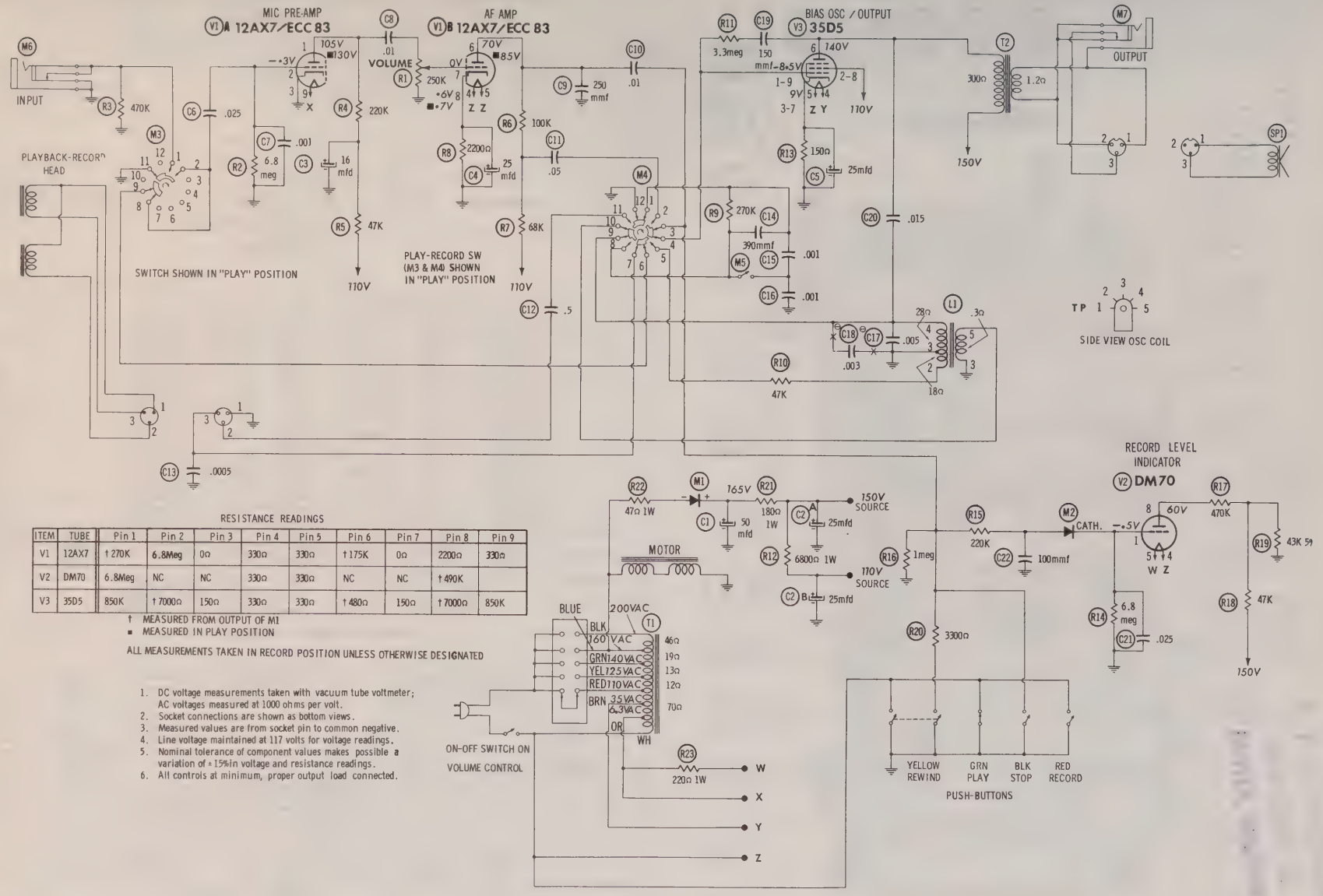


A PHOTOFACT "EXPLODED" VIEW
Howard W. Sams & Co., Inc. 1958

FIG. 5B EXPLODED VIEW OF PARTS BELOW BASEPLATE

TROUBLE CHART (CON'T.)

Sympton	Cause	Remedy
Reels turn at one speed only.	Turning speed selector does not lift motor rotor sufficiently to engage different shaft diameter.	Reset the position of knob (34) on shaft, effectively shortening nylon cord from motor rotor to Speed Selector Shaft (100). Make sure spring fork on rotor end is on the side nearest the end of the shaft past the ball retainers.
	Broken nylon cord connecting rotor spring fork and speed selector shaft.	Replace cord. Cabinet must be removed for access to speed selector shaft.
Hum in Output	Poor shielding of Mike while recording.	Check shield on Mike cable for proper connections.
	Noisy tape.	Substitute other tape to compare.
	Poor contact between Recording Head cover (3) and bottom plate (49).	Scrape or clean surfaces and tighten cover screw.
	Shorted or leaking filter Capacitors, C1--50MFD, 300V, C2--25-25MFD, 200V, or C3--16MFD, 200V.	Isolate, test and replace where necessary.
	Weak Selenium Rectifier.	Test and replace if necessary.
Reels scrape against Plastic Top Deck.	Chassis loose from Mounting Studs.	Remove Top Deck Screws (9) and Screws joining case at bottom. Unplug speaker connection. Invert machine and tighten or replace the mounting screws.
Tape spills over on left reel when stopped after rewinding.	Improper positioning of collar (87) on Rapid advance adjusting shaft (123).	Loosen set screw and move collar toward rear of mechanism approx. 1/16". Try rewind and stop. Slightly alter adjustment if necessary.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†270K	6.8Meg	0Ω	330Ω	330Ω	†175K	0Ω	2200Ω	330Ω
V2	DM70	6.8Meg	NC	NC	330Ω	330Ω	NC	NC	†490K	
V3	35D5	850K	†7000Ω	150Ω	330Ω	330Ω	†480Ω	150Ω	†7000Ω	850K

† MEASURED FROM OUTPUT OF M1
■ MEASURED IN PLAY POSITION

ALL MEASUREMENTS TAKEN IN RECORD POSITION UNLESS OTHERWISE DESIGNATED

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

384-9

GELOSO
MODEL G255-S

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mic Preamp., AF Amp.	ECC83 12AX7	

ITEM No.	USE	TYPE	NOTES
V2	Record Level Indicator	DM70	
V3	Bias Osc., Output	35D5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	GELOSO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	50	300	4123	PRS350V50	BR5035	TC79			R2533 *
C2A	25	350	4122	PRS450V1616					R2532 *
B	25	350							
C3	16	250	4021	PRS250V16	BR1625	TC54	TD-16-250	MT-2516	TVA-1507
C4	25	30	4003	PRS50V25	BBR25-50	TC36	TD-25-50	MT-0525	TVA-1306
C5	25	30	4003	PRS50V25	BBR25-50	TC36	TD-25-50	MT-0525	TVA-1306

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	GELOSO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	.025	400		P488N-025	DF-203	CUB4S22	ED-02	GEM-4125	4TM-S25	
C7	.001	400		P488N-001	D6-102	CUB6D1	GP-1000	GEM-421	6TM-D1	
C8	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C9	250			1468-00025	D6-251	5W5T25	ED-250	MC240	1FM-325	
C10	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C11	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C12	.5	125		P288N-5		CUB2P5		GEM-205	2TM-P5	
C13	.0005	400		P488N-005	D6-501	CUB6T5	ED-500	GEM-635	6TM-T5	
C14	390			1468-00039	D6-391	5W5T39	CY15C391K	UC-5339	1FM-339	
C15	.001	400		P488N-001	D6-102	CUB6D1	GP-1000	GEM-421	6TM-D1	
C16	.001	400		P488N-001	D6-102	CUB6D1	GP-1000	GEM-421	6TM-D1	
C17	.005	400		P488N-005	D6-502	CUB6D5	GP-5000	GEM-425	6TM-D5	①
C18	.003	400		P488N-003	D6-302	CUB6D3	GP-3000	GEM-623	6TM-D3	①
C19	150			1468-00015	D6-151	5W5T15	CY15C151K	MC236	1FM-315	
C20	.015	400		P488N-015	DD16-153	CUB6S15	ED-015	GEM-4115	4TM-S15	
C21	.025	400		P488N-025	DF-203	CUB4S22	ED-02	GEM-4125	4TM-S25	
C22	100			1468-0001	D6-101	5W5T1	CY15C101K	MC235	1FM-31	
C23	.001	400		P488N-001	D6-102	CUB6D1	GP-1000	GEM-421	6TM-D1	

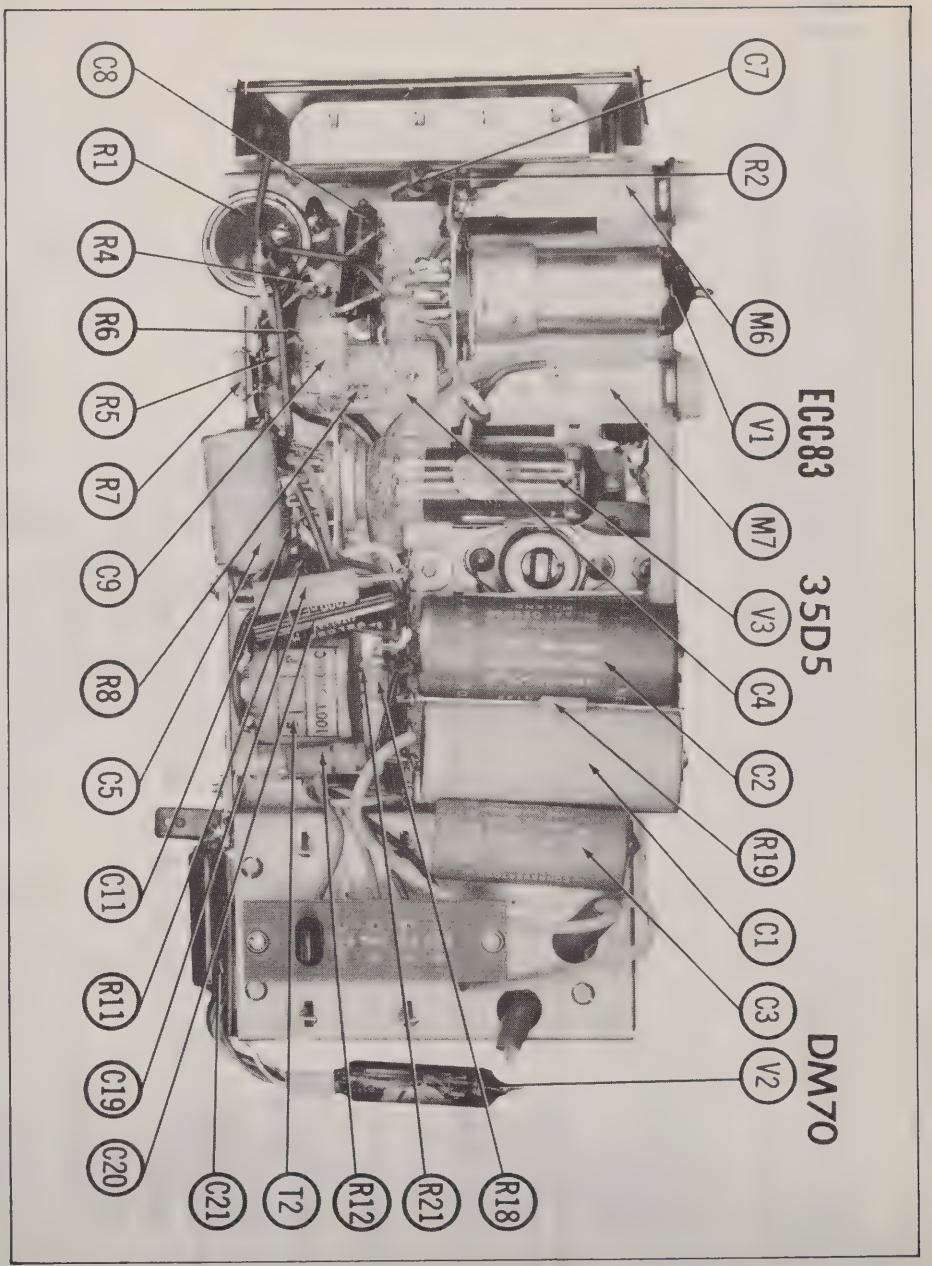
Note 1. When C17 is .008MFD, C18 is not used.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	GELOSO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	250K	½	125	AB-50	A47-250K-Z	Q13-130	U46	Volume
B	Shaft			AK-11	RS-5	C3 †	DS-36 ‡	
C	Switch			KB-1 or KR-1 *	SWE-12	76-1	US-26	

* Use KR-1 on Red Label Control only.
† Special Shaft Coupler
‡ Special Shaft Extension

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	GELESO PART No.	NOTES
R2	6.8Meg			
R3	470K			
R4	220K			
R5	47K			
R6	100K			
R7	68K			
R8	2200Ω			
R9	270K			
R10	47K			
R11	3.3Meg			
R12	6800Ω	1		
R13	150Ω			
R14	6.8Meg			
R15	220K			
R16	1Meg			
R17	470K			
R18	47K			
R19	43K 5%			
R20	3300Ω			
R21	180Ω	1		
R22	47Ω	1		
R23	220Ω	1		
R24	470K			

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA GELOSO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	200V Tap @ 160V @ 140V @ 125V @ 110V @ 35V @ 5.3V	@ .010A @ .43A @ .15A @ .28A			255/23					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA GELOSO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4600Ω	3-4Ω	255/23		A-3026			S-6X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA GELOSO PART No.	QUAM PART No.	NOTES
SP1	3"	PM	3-4Ω	255/21	3A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA GELOSO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Bias Osc.	117				

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA GELOSO PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.050A	124		6RS050		

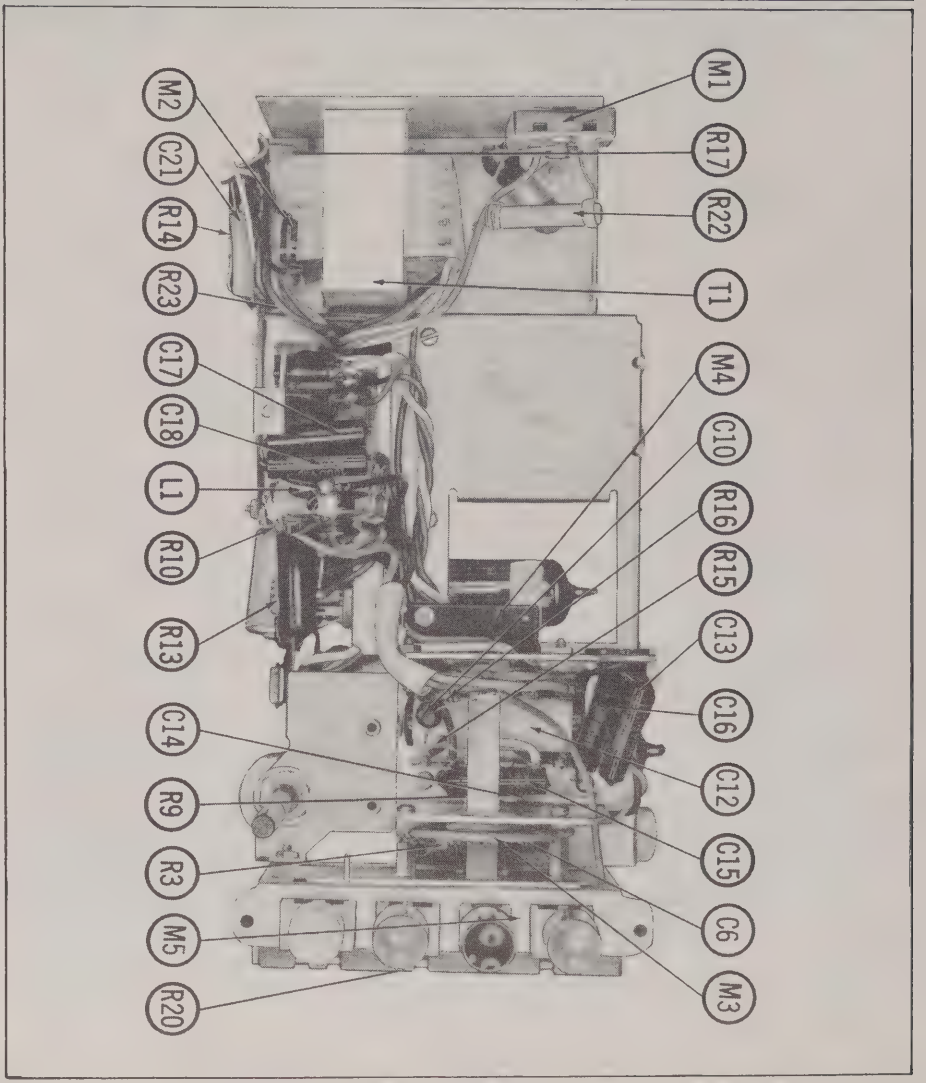
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA GELOSO PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M2	0A81		1N60	1N60	Indicator Light Rect (Pigtail)

CHASSIS—BOTTOM VIEW

MISCELLANEOUS

ITEM No.	PART NAME	GELOSO PART No.	NOTES
M3	Switch	33	Function (Rotary Wafer Type)
M4	Switch	34	Function (Rotary Wafer Type)
M5	Switch	37	Compensator (Leaf Type)
M6	Jack	42	Microphone
M7	Jack	51	Output



MECHANICAL PARTS LIST

Ref. No.	Parts No.	Description	Ref. No.	Parts No.	Description
1	3	Plastic Protective Cover	62	54	Drive Pulley
2	147	Screw-3/ 32X5 (Iron)	63	137	Washer
3	69	Recording Head Cover	64	61A	Tensioning Bracket
4	118	Volume Control Knob	65	62	Drive Wheel Support
5	126	Button-Yellow	66	144	Screw-Iron-1/ 8X6
6	129	Button-Green	67	76	Drive Wheel Tension Spring
7	127	Button-Black	68	60	Drive Belt
8	128	Button-Red	69	67	Flywheel & Shaft
9	140	Screw-1/ 8X25 (Iron) (4)	70	81	Flywheel Spring
10	4	Plastic Top Deck	71	71	Flywheel Support Plate
11	8	Hinge Pin	72	144	Screw-Iron-1/ 8X6
12	7	Indicator Light Clip	73	138	Washer
13	144	Screw	74	59	Reel Bobbin- Left
14	87	Cap Nut	75	53	Reverse Wheel
15	133	Washer	76	104	Idler Shaft Washer
16	65	Right Reel Bobbin	77	120	Spring Washer
17	107	Drive Shaft Washer	78	55	Rewind Idler Wheel
18	119	Spring Washer	79	134	Washer
19	66	Cork Clutch Disc	80	73	Idler Pulley Arm
20	106	Drive Shaft Washer (2)	81	122	Spring Washer
21	106A	Washer (3)	82	121	Spring Washer
22	82	Clutch Pressure Spring	83	84	Shaft Adjusting Spring
23	144	Screw	84	79	Idler Lever Spring
24	72	Clutch Cam	85	63	Rapid Advance Idler Lever
25	144	Screw	86	121	Spring Washer (2)
26	119	Spring Washer	87	89	Collar And Set Screw
27	138	Washer	88	75	Rapid Advance Return Spring
28	28	Rapid Advance & Release Arm	89	138	Washer
29	110	Rubber Idler Wheel	90	64	Rapid Advance Activating Lever
30	115	Plastic Idler Shaft Cover	91	58	Rapid Advance Knob
31	27	Rewind Shift Arm	92	99	Mounting Screw
32	83	Shift Arm Tension Spring	93	1	Plastic Case-Rear Half
33	25	Upper Chassis	94	25	Upper Chassis
34	56	Speed Selector Knob	95	139	Support Plate Nut
35	151	Set Screw (Steel)	96		Part of Item 94
36		Recording Head Assembly	97	116	Washer
37	120	Spring Washer	98		Lockwasher
38	113	Felt Pad	99	143	Screw-Iron-1/ 8X10
39	93	Pressure Pad Arm (Right)	100	97	Speed Selector Shaft
40	78	Pressure Pad Spring (Right)	101		Screw
41	120	Spring Washer	102	199	Push-Button Assembly
42	80	Pressure Pad Arm Spring (Left)	103	132	Motor
43	92	Pressure Pad Arm (Left)	104		Spring, Part of Motor
44	113	Felt Pad	105	149	Nut-Brass-5/ 32
45	102	Recording Head Screw	106	141	Screw-Iron-1/ 8X20
46	101	Recording Head Hold Down Pin	107	2	Plastic Case-Front Half
47	74	Recording Head	108	17	Rewind Button Assembly
48	57	Recording Head Base	109	18	Play Button Assembly
49	70	Recording Head Bottom Plate	110	19	Stop Button Assembly
50	123	Nylon Bearing Screw	111	20	Record Button Assembly
51	145	Screw-Brass 1/ 8X7	112	11	Push Button Spring
52	109	Bearing Lock Nut	113	9	Push Button Frame
53	68	Flywheel Support	114		Nut
54	86	Cable Holder & Lug	115	16	Button Release Plate
55	90	Recording Plate Spacer-Front	116	14	Hinge Pin
56	111	Insulated Washer	117	15	Switch Plate Support
57	135	Insulating Washer	118	144	Screw-Iron-1/ 8X6
58	136	Flat Nut For Recording Head	119	10	Selector Switch Shaft
59	77	Record Head Pin Spring	120	13	Return Spring
60	91	Recording Plate Spacer-Rear	121	141	Screw-Iron-1/ 8X20 (2)
60A	122	Spring Washer	122	12	Insulated Switch Block
61	120	Spring Washer	123	96	Rapid Advance Adjusting Shaft

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

GROMMES MODEL 260

GROMMES MODEL 260

GROMMES MODEL 260

TRADE NAME	Grommes Model 260
MANUFACTURER	Precision Electronics, Inc., 9101 King Ave., Franklin Park, Illinois
TYPE SET	AC Operated Audio Amplifier
TUBES (Seven)	Types 12AU7 AF Amplifier, 12AU7 Phase Inverter, 12AU7 Driver, (2) 6550/ KT88 Output, (2) 5U4GB Rectifier
POWER SUPPLY	110-120 Volts AC-50/60 Cycles RATING 1.6 Amp. @ 117 Volts AC (175 Watts)

ADJUSTMENTS (R3 and R4)

If either output tube (V4 or V5) is replaced, the "Output Balance " (R3) and the "Bias" (R4) controls should be adjusted.
The "Output Balance" control (R3) should be adjusted so that the plate currents of V4 and V5 are equal. A 0-100MA meter (with standard phono plug) may be alternately inserted into the two "Plate Current" jacks on the chassis side to check this current.
The "Bias" control (R4) should then be adjusted for a reading of 75MA on the meter when inserted into each of the jacks.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AU7	
V2	AF Amp.-Phase Inv.	12AU7	
V3	Driver	12AU7	
V4	Output	6550/ KT88	
V5	Output	6550/ KT88	
V6	Rectifier	5U4GB	
V7	Rectifier	5U4GB	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	GROMMES PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	500		AFH3-52	D0179.7	FP396.1	TMQ-123	T-205 MT-5010	R2502 *
B	■20	500							
C	▲20	500							
C2A	■40	500		AFH3-52	D0179.7	FP396.1	TMQ-123	T-205 MT-5010	R2502 *
B	▲20	500							
C	▲20	500	(Note 1)						
C3A	■10	350	(Note 2)	AFH2-36	B0370	FP231	TMD-47	D-200	TVL-2750
B	▲10	350							

* Non catalog item.
Note 1. C2C is not used.
Note 2. In some versions C3 is a single 20MFD unit.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

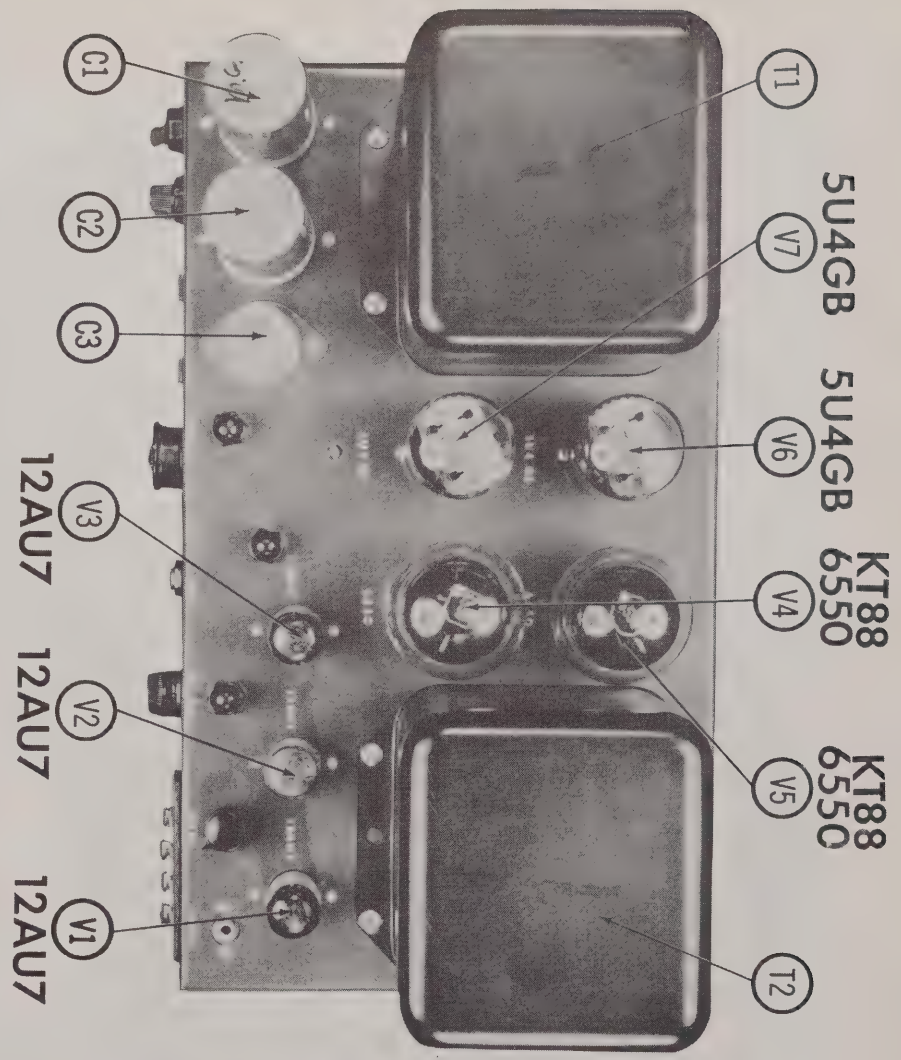
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	GROMMES PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.47	200		P288N-47		CUB2P47		GEM-2047	2TM-P47	
C5	250			BPD-00025	DD-251	L10T25	ED-250	UC-5325	5GA-T25	
C6	.47	200		P288N-47		CUB2P47		GEM-2047	2TM-P47	
C7	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C8	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C9	.05	600		P688N-05	DF-503	CUB6S5		GEM-615	6TM-S5	
C10	10000	2000							BL-S10	Note 1
C11	20			SI 20	D6-200	LT6Q2	GP-20	UC-542	5GA-Q2	

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	GROMMES PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	VC500K	B-60	A47-500K-Z	QI3-133	U48	Gain
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R2	5000Ω	1	380-0314-00					DC Balance
R3	5000Ω	1	380-0314-00					Output Balance
R4	500K	1	25-939					Bias
R5A	1Ω	2	RR1P					Internal Impedance
B	1Ω	2						Internal Impedance

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	GROMMES PART No.	NOTES
R6	100K			
R7	1000Ω			
R8	2200Ω			
R9	22K			
R10	1Meg			
R11	100K	1		
R12	4700Ω			
R13	47K	1		
R14	1Meg			
R15	56K	1		
R16	22K	2		
R17	100K	2		
R18	100K	2		

ITEM No.	RATING OHMS	RATING WATT	GROMMES PART No.	NOTES
R19	1000Ω			
R20	120K			
R21	56K	1		
R22	1000Ω			
R23	120K			
R24	56K	1		
R25	68K	1		
R26	68K	1		
R27	4700Ω	1		
R28	10K	1		
R29	10K	1		
R30	47K	1		
R31	220K	2		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA GROMMES PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @1.6A	740VCT @.210A	5VAC @ 6A	6.3VCT @ 4A	TP-75					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA GROMMES PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	3700Ω CT	16Ω tap @ 8Ω, 4Ω	TO-60					HSM-192	

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA GROMMES PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L1	.210A	40Ω	1.8 HY.		C5030	C-2991	C-2325	26C43①	C-17X

① Drill new mounting hole.

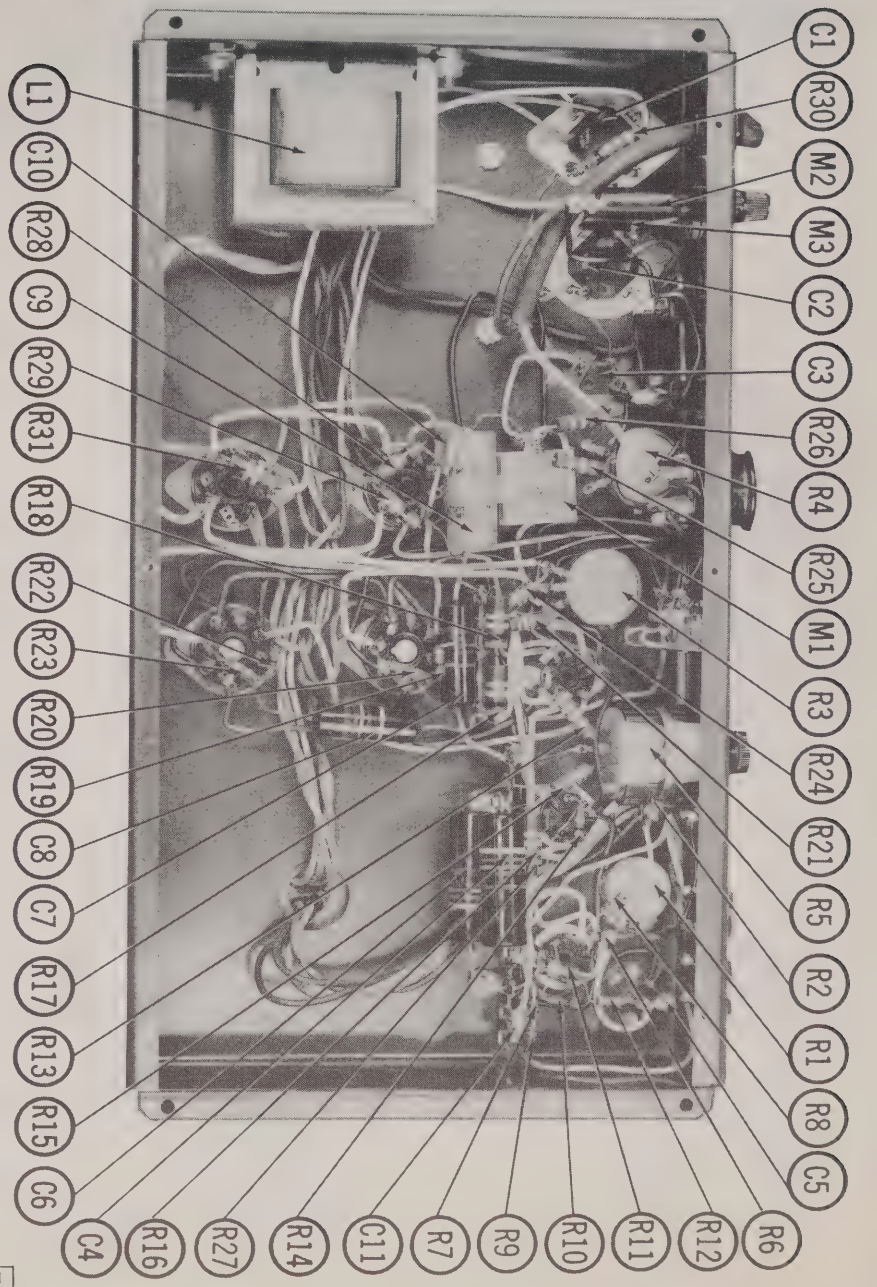
RECTIFIERS

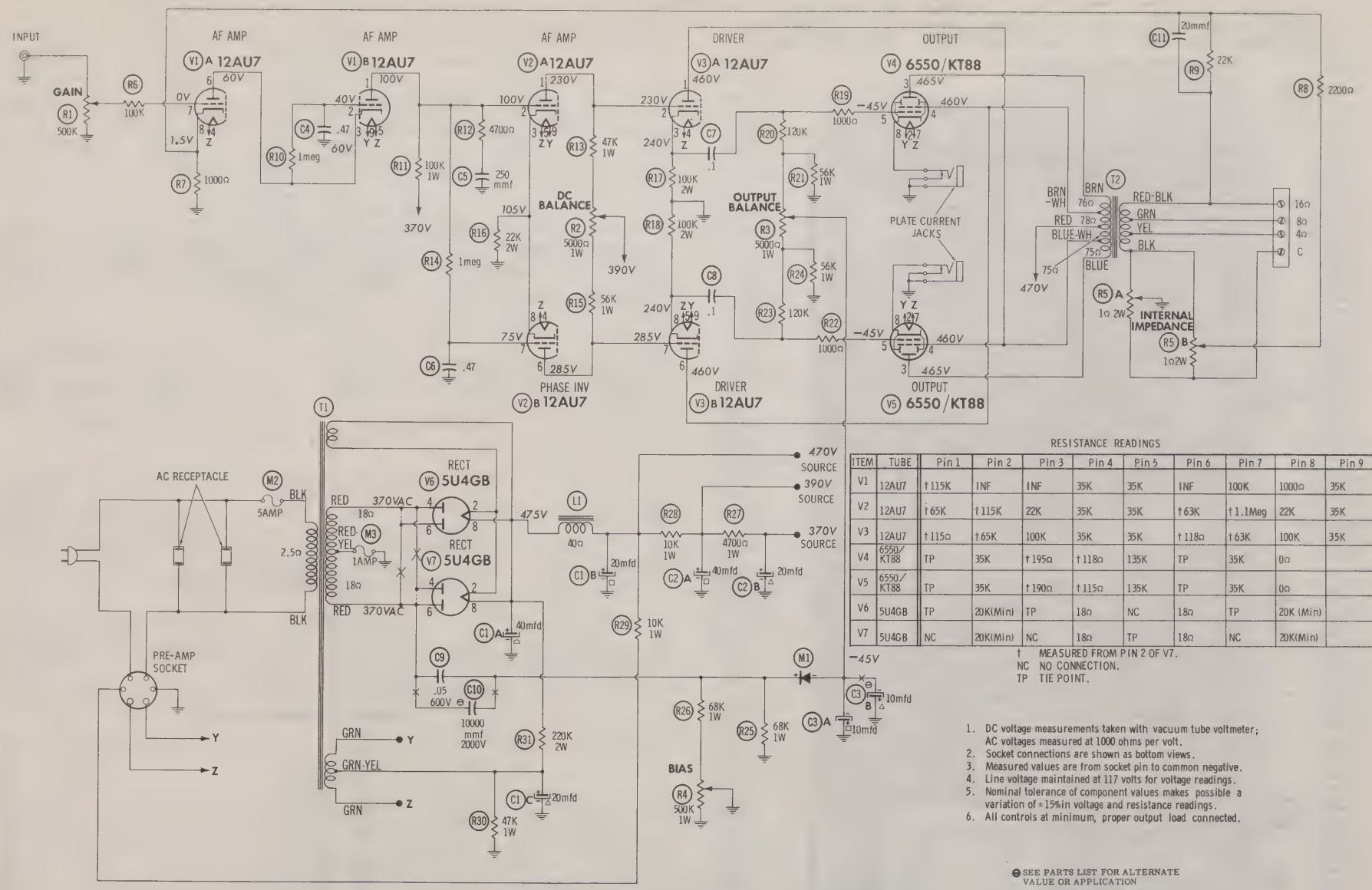
ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA GROMMES PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.0014A		1003A	RS075	75	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA GROMMES PART No. FUSE	GROMMES PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	3AG	5A 250V			312005. (3AG 5A 250V)	342001	AGC5	HKP
M3	3AG	1A 250V			312001. (3AG 1A 250V)	342001	AGC1	HKP

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU7	†115K	INF	INF	35K	35K	INF	100K	1000Ω	35K
V2	12AU7	†65K	†115K	22K	35K	35K	†63K	†1.1Meg	22K	35K
V3	12AU7	†115Ω	†65K	100K	35K	35K	†118Ω	†63K	100K	35K
V4	6550/KT88	TP	35K	†195Ω	†118Ω	135K	TP	35K	0Ω	
V5	6550/KT88	TP	35K	†190Ω	†115Ω	135K	TP	35K	0Ω	
V6	5U4GB	TP	20K(Min)	TP	18Ω	NC	18Ω	TP	20K (Min)	
V7	5U4GB	NC	20K(Min)	NC	18Ω	TP	18Ω	NC	20K(Min)	

† MEASURED FROM PIN 2 OF V7.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

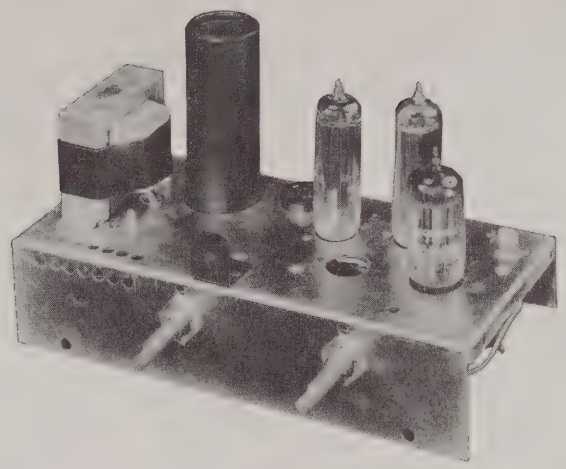
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

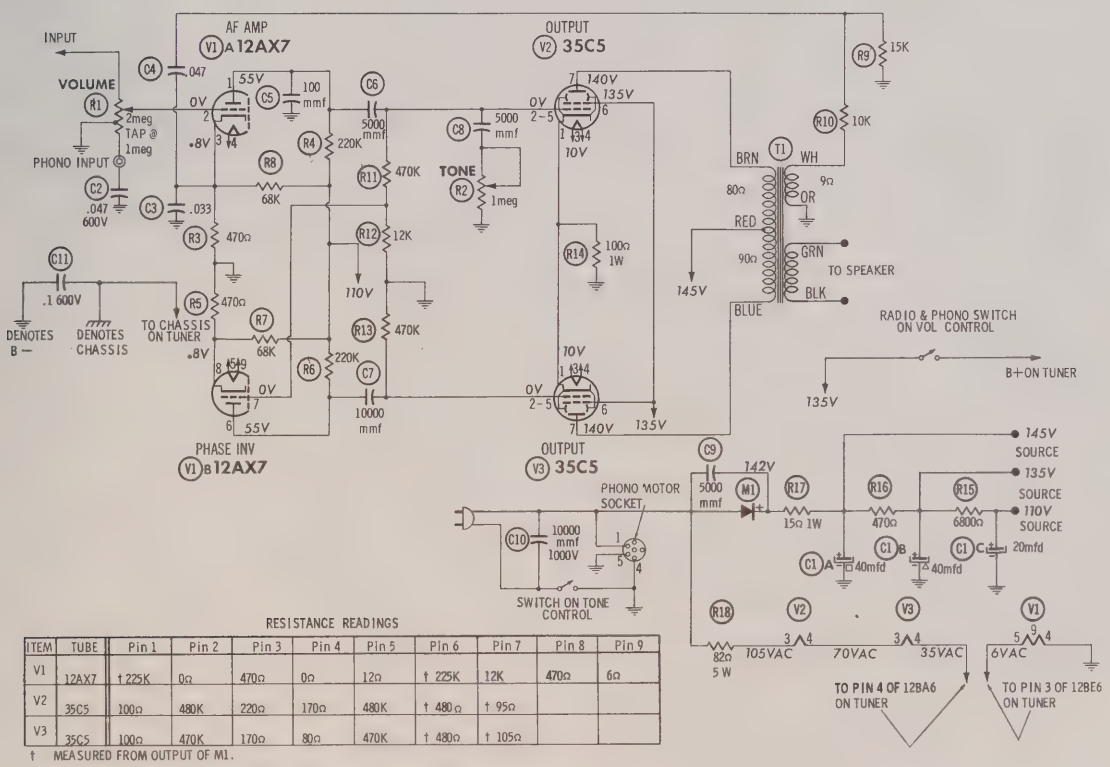
MAGNAVOX CHASSIS AMP-158AA

MAGNAVOX CHASSIS AMP-158AA



TRADE NAME	Magnavox Chassis AMP-158AA
MANUFACTURER	Magnavox Co., 2131 Bueter Rd., Fort Wayne 4, Indiana
TYPE SET	AC Operated Audio Amplifier With Phono Provisions
TUBES (Three)	Types 12AX7 AF Amp.-Phase Inv., (2) 35C5 Output
POWER SUPPLY	110-120 Volts AC-50/60 Cycles RATING .38 Amp. @ 117 Volts AC (35 Watts)

MAGNAVOX CHASSIS AMP-158AA



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 225K	0Ω	470Ω	0Ω	12Ω	† 225K	12K	470Ω	6Ω
V2	35C5	100Ω	480K	220Ω	170Ω	480K	† 480Ω	† 95Ω		
V3	35C5	100Ω	470K	170Ω	80Ω	470K	† 480Ω	† 105Ω		

† MEASURED FROM OUTPUT OF M1.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

384-11

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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FOLDER 11

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inverter	12AX7	
V2	Output	35C5	
V3	Output	35C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	150	270023-24	PRS150V40-4020	BBRT44215	TCT3116	TDLT-4	D-060 FM-1520	R2312 *
B	▲40	150							
C	20	150							

* Non-Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	600	250201-11	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C3	.033	200	250202-10	P288N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C4	.047	200	250202-11	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C5	100		250218-22	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C6	5000		250175-30	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C7	10000		250175-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	5000		250175-30	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C9	5000		250175-30	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C10	10000	1000	250219-2	P1088N-01	DD16-103	CUB10S1		GEM-1011	10TM-S1	
C11	.1	600	250201-13	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2Meg	½	220141-1					Vol., Tap @ 1Meg & Sw. Tone
R2A	1Meg		220123-28	B-70	A47-1Meg-Z	Q13-137	U53	
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

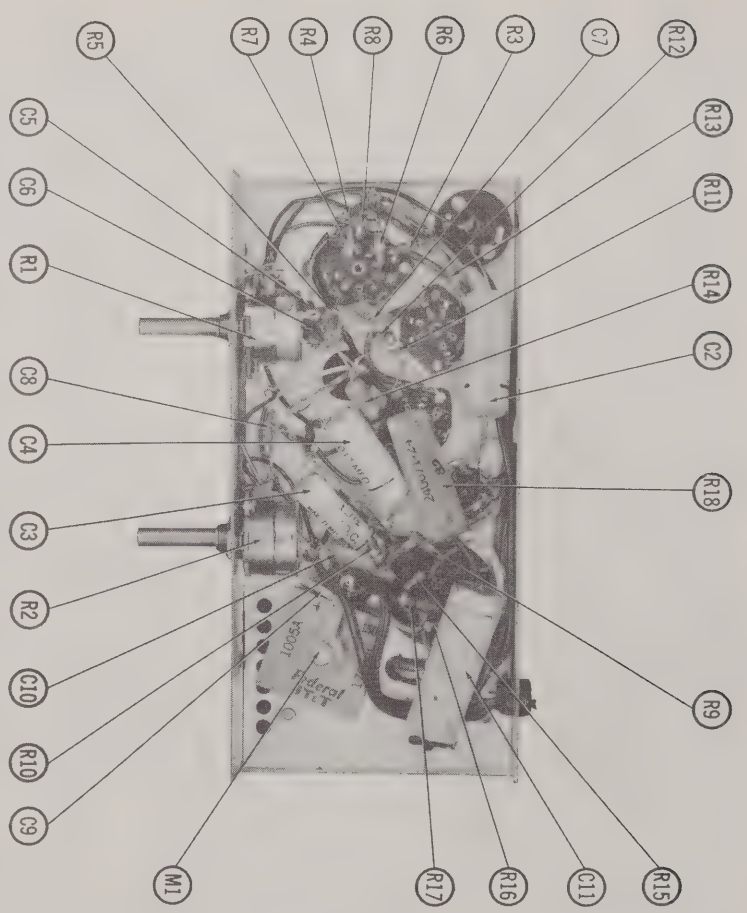
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R3	470Ω		230104-58	
R4	220K		230104-90	
R5	470Ω		230104-58	
R6	220K		230104-90	
R7	68K		230104-84	
R8	68K		230104-84	
R9	15K		230104-76	
R10	10K		230104-74	
R11	470K		230104-94	
R12	12K		230104-75	
R13	470K		230104-94	
R14	100Ω	1	230105-50	
R15	6800Ω		230104-72	
R16	470Ω		230104-58	
R17	15Ω	1	230105-40	
R18	82Ω	5	240071-24	

TRANSFORMER (AUDIO OUTPUT)

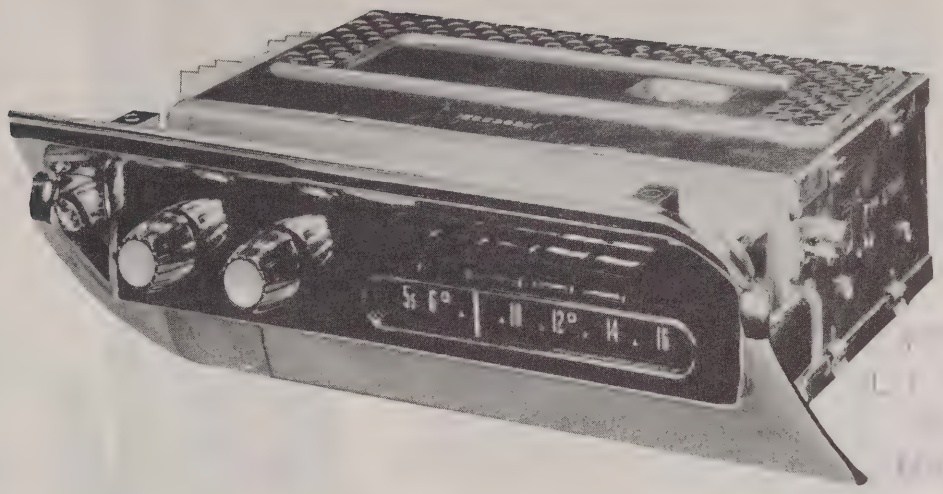
ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC. 1	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3750Ω CT	3-4Ω	320265-1						
	Turns Ratio PRI.	SEC. 2							
	15:	1							

CHASSIS—BOTTOM VIEW



RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA MAGNAVOX PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.098A	580038-2	1005A	RS150	150	



MOPAR
MODEL 849

TRADE NAME	Mopar Model 849 (For 1957 P30 & P31 Plymouth Automobiles)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Custom Built AM Automobile Receiver With Transistorized Output
TUBES (Five)	Types 12BL6 RF Amplifier, 12AD6 Converter, 12AF6 IF Amplifier, 12AE6 Det.-AVC-AF Amp., 12K5 Driver
POWER SUPPLY	12 Volt Storage Battery — RATING 2 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Use an insulated alignment screwdriver for adjusting. Maintain 1.79 Volts on output meter.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	262.5KC (400~ Mod)	High frequency end stop	Across voice coil	A1, A2 A3, A4	Adjust for maximum output.
2.	Fig. 1	Thru dummy to Antenna Receptacle	1610KC	"	"	A5, A6, A7	"
	Steps 3, 4 & 5 are unnecessary unless tuner has been tampered with or associated components have been replaced. If necessary, back tuning cores (A8, A9, A10) out of coils but not out of coil forms.						
3.	Fig. 1	Thru dummy to Antenna Receptacle	1610KC (400~ Mod)	High frequency end stop	Across voice coil	A5, A6, A7	Adjust for maximum output.
4.	"	"	1020KC	49/64" from high frequency end stop.	"	A8, A9, A10	Adjust for maximum output. (Alignment tool #66A76278 may be used).
5.	"	"	1610KC	High frequency end stop	"	A5, A6, A7	Adjust for maximum output.
6.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC. Adjust A7 for maximum output.						

POINTER CALIBRATION

Tune receiver to a 1000KC signal. If necessary adjust pointer adjusting screw until pointer coincides with 1000KC mark on dial scale.

PUSHBUTTON ADJUSTMENT

1. Extend antenna. Allow receiver to warm up for 15 minutes.
2. Pull pushbutton out.
3. Tune manually to desired station. Press pushbutton in firmly.
4. Repeat for remaining pushbuttons.

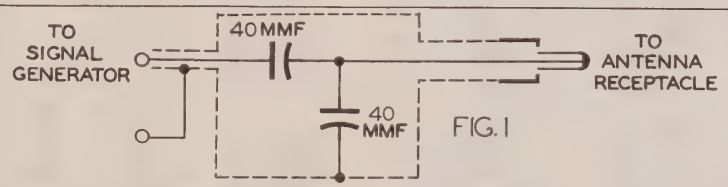


FIG. 1

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PARTS LIST AND DESCRIPTIONS

MOPAR MODEL 849

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BL6	
V2	Converter	12AD6	
V3	IF Amplifier	12AF6	
V4	Det.-AVC-AF Amp.	12AE6	
V5	Driver	12K5	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N176	Output	2N155		2N242	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■500	16	23B539261	AFH2-02-10	B0045	WP200.5			R2452 *
B	▲100	16							
C2	500	3	23B539260	PRS6V500	BBR500-6	TC605	TD-500-6	MTH-0650	TVA-1103

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	20-180		20B534809							
C4	.02	200	8R121003	P288N-02	DD-203	CUB2S2	ED-02	GEM-412	2TM-S2	
C5	18		21R120578							N150
C6	8.2		21R120159	NPO-SI 8.2		C1010V82	TCO-8.2			
C7A	50-260									
B	47		20B539612							
C	120-220									
C8	100		21R124032							N220 10%
C9	10000		21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C10	27		21R410089	SI 27	DD-270	L10Q27	ED-27	UC-5427	5GA-Q27	
C11	47		21R115593	N750-DI 47	TCN-47	C10Q47U	TC7-47	NT-5447	5TCU-Q47	N750
C12	10000		21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C13	220		21R410115	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C14	10000		21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	18B540376	AB-70	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			AK-8	RS-3/16	NQ	DS-37	
C	Switch			KB-4	SWE-13	76-1	US-26	
R2	150Ω	2	18A536645					Emitter Bias (Wire Wound)

RESISTORS

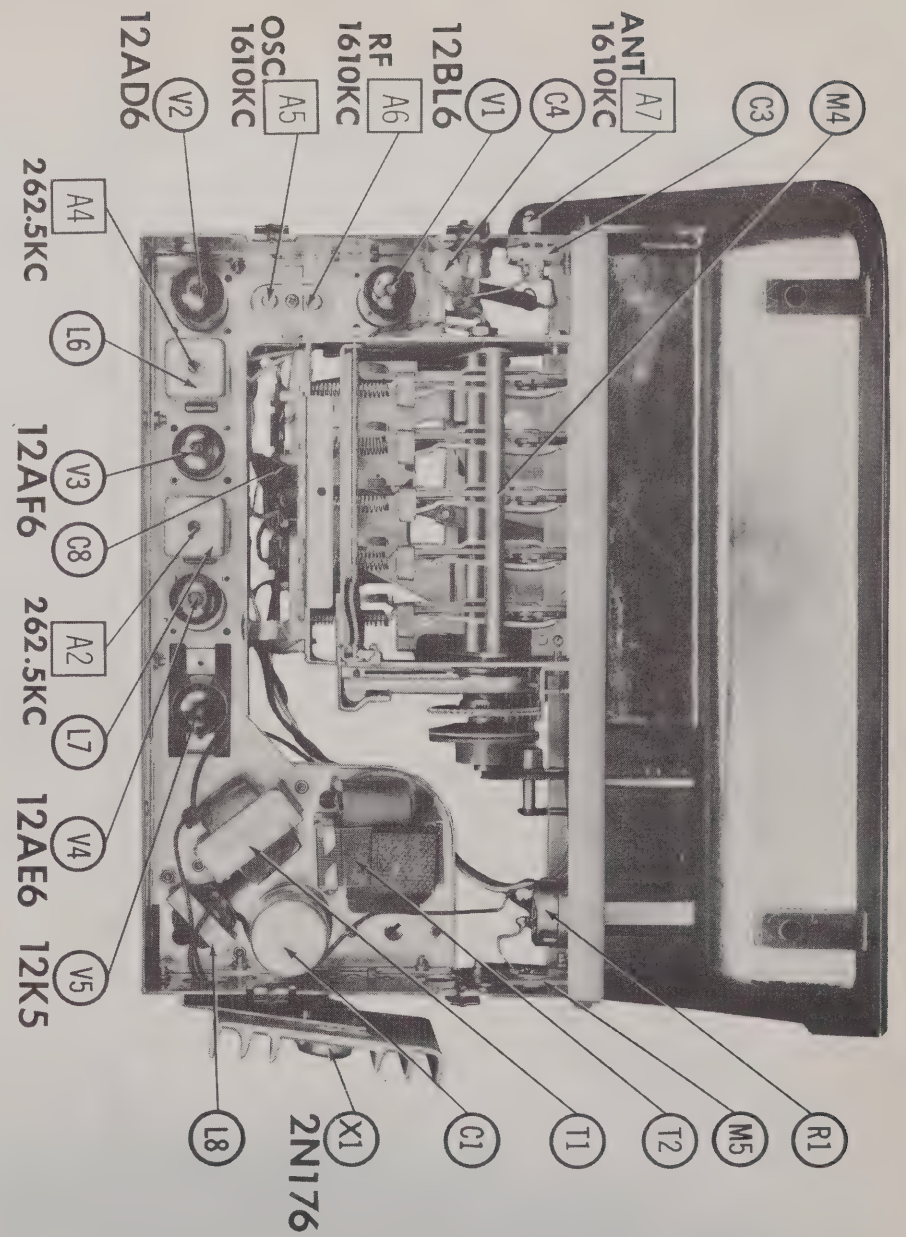
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R3	470K		6R6032	
R4	1800Ω		6R2089	
R5	470Ω			Note 1
R6	2.7Meg		6R488136	
R7	4.7Meg		6R2122	
R8	33K		6R6012	
R9	10Meg		6R2109	
R10	1Meg		6R6004	
R11	47K		6R6056	

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R12	10Meg		6R2109	
R13	1000Ω		6R6301	
R14	470K		6R6032	
R15	68Ω		6R6007	
R16	3.3Meg		6R2118	
R17	15Ω		6R410033	
R18	100Ω		6R6018	
R19	10Ω		6R5621	
R20	39Ω	1	6R3961	
R21	100Ω		6R6018	

Note 1. Some versions may use 330Ω in this application (Part #6R6010).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	10:	1	25K541759						Alternate Part #25K540682

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	62.5Ω	3-4Ω	25C539881						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	5" X 7"	PM	3-4Ω	50D540194	57A21	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	24C536308					Part of Tuner M4
L2	RF Choke	24K539955					Includes 27MMF Cap
L3	IF Trap Coil	24K539616	19-3125	TV-195			133 Microhenries
L4	RF Coil	24C536308					Part of Tuner M4
L5	Osc. Coil	24B536300					Part of Tuner M4
L6	Input IF	24B536693	16-6752	BC-350	12-H1	RF-3	
L7	Output IF	24K532153	16-6754	BC-354	12-H6		

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L8	2A	1.3Ω	3.8 Mlhy.	25K540136					

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	SFE	7½A 32V	65R122346		30307.5 (7AG 7½A 32V)	155009	SFE 7½	HDH

MISCELLANEOUS

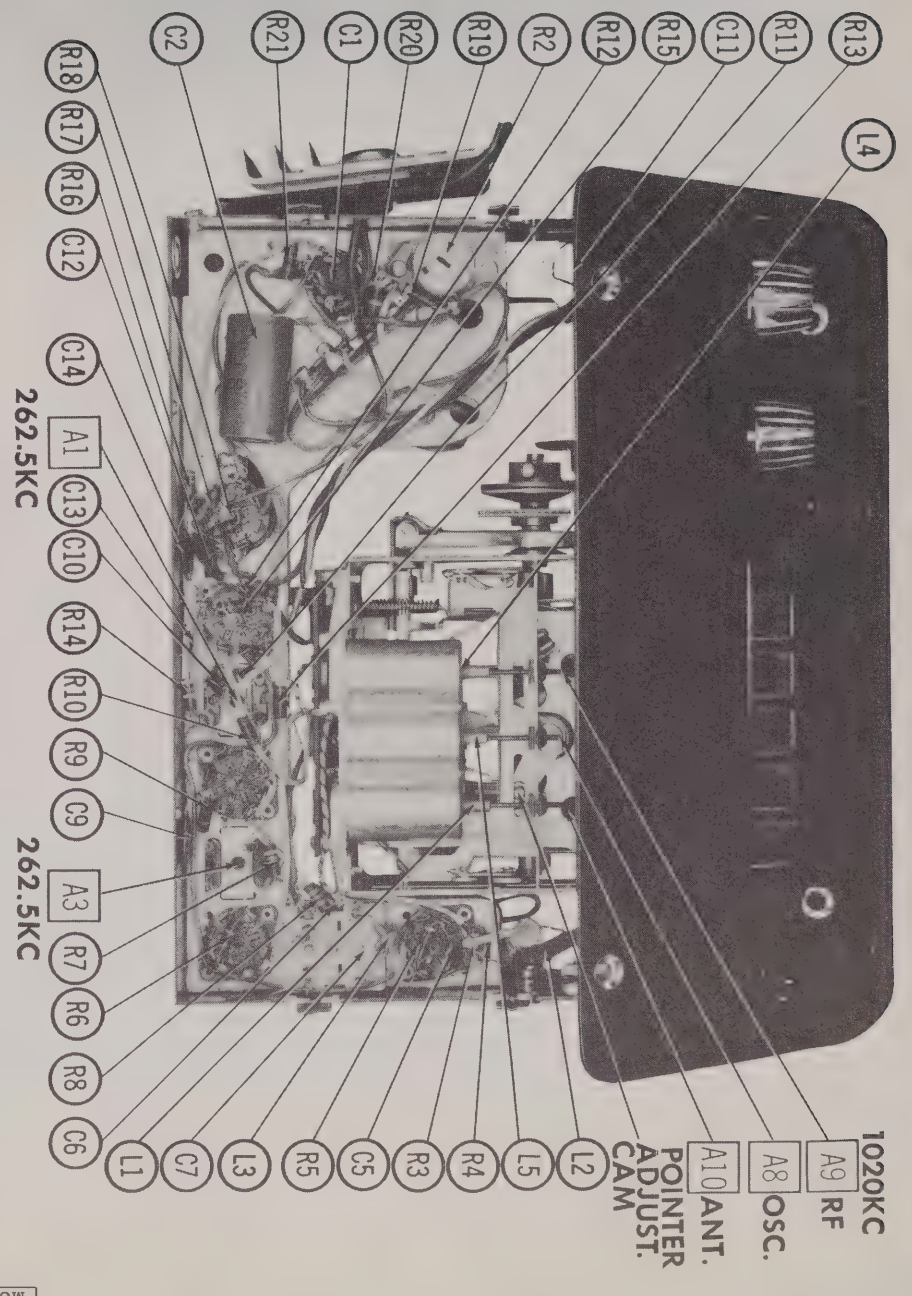
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Dial Light	65R10867	#44
M3	Dial Light	65R10867	#44
M4	Tuner	77E539483	AT-196, Complete
M5	Spark Plate	48K539953	Selenium

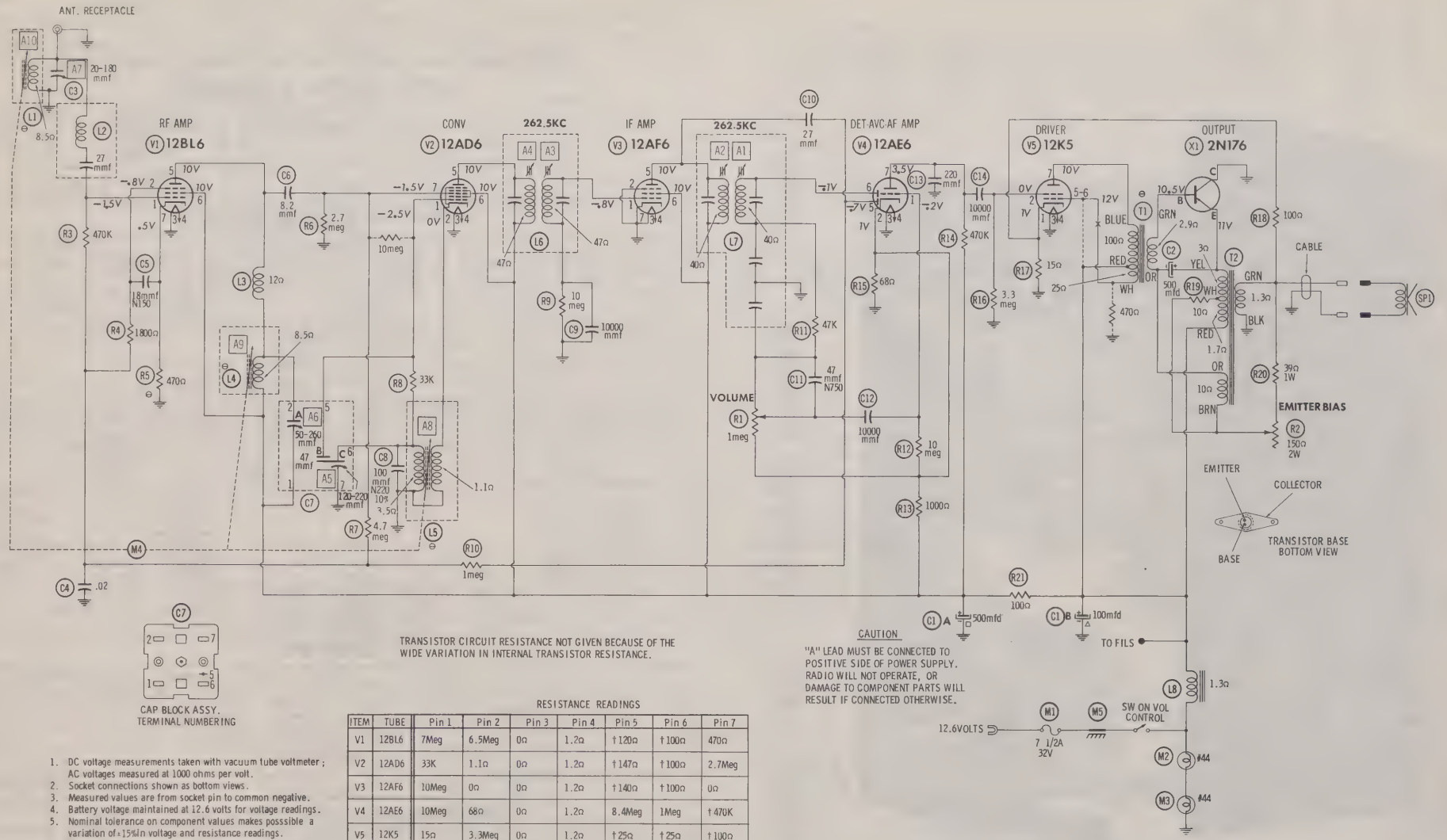
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	1V540469	On-Off-Volume & Tuning
Dial Scale	34B538870	
Crystal	61B538855	Dial Scale

CHASSIS—BOTTOM VIEW





CAP BLOCK ASSY.
TERMINAL NUMBERING

TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BL6	7Meg	6.5Meg	0Ω	1.2Ω	†120Ω	†100Ω	470Ω
V2	12AD6	33K	1.1Ω	0Ω	1.2Ω	†147Ω	†100Ω	2.7Meg
V3	12AF6	10Meg	0Ω	0Ω	1.2Ω	†140Ω	†100Ω	0Ω
V4	12AE6	10Meg	68Ω	0Ω	1.2Ω	8.4Meg	1Meg	†470K
V5	12K5	15Ω	3.3Meg	0Ω	1.2Ω	†25Ω	†25Ω	†100Ω

† MEASURED FROM JUNCTION OF R21 AND L8

CAUTION

"A" LEAD MUST BE CONNECTED TO POSITIVE SIDE OF POWER SUPPLY. RADIO WILL NOT OPERATE, OR DAMAGE TO COMPONENT PARTS WILL RESULT IF CONNECTED OTHERWISE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes posssible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

TRANSISTOR BIAS ADJUSTMENT (R2)

After the transistor (X1) is replaced, the emitter bias should be checked. To do this, connect the negative lead of a low range VTVM to the junction of T2 and C2. Connect the positive lead to the junction of T2 and R19. Set the bias control (R2) to its maximum resistance position. With a power source of 12 volts DC connected to the receiver, allow a 10 minute warm-up period. Adjust the bias control (R2) for a reading of .85 volts on the VTVM. (This is equivalent to an emitter current of 450MA).

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

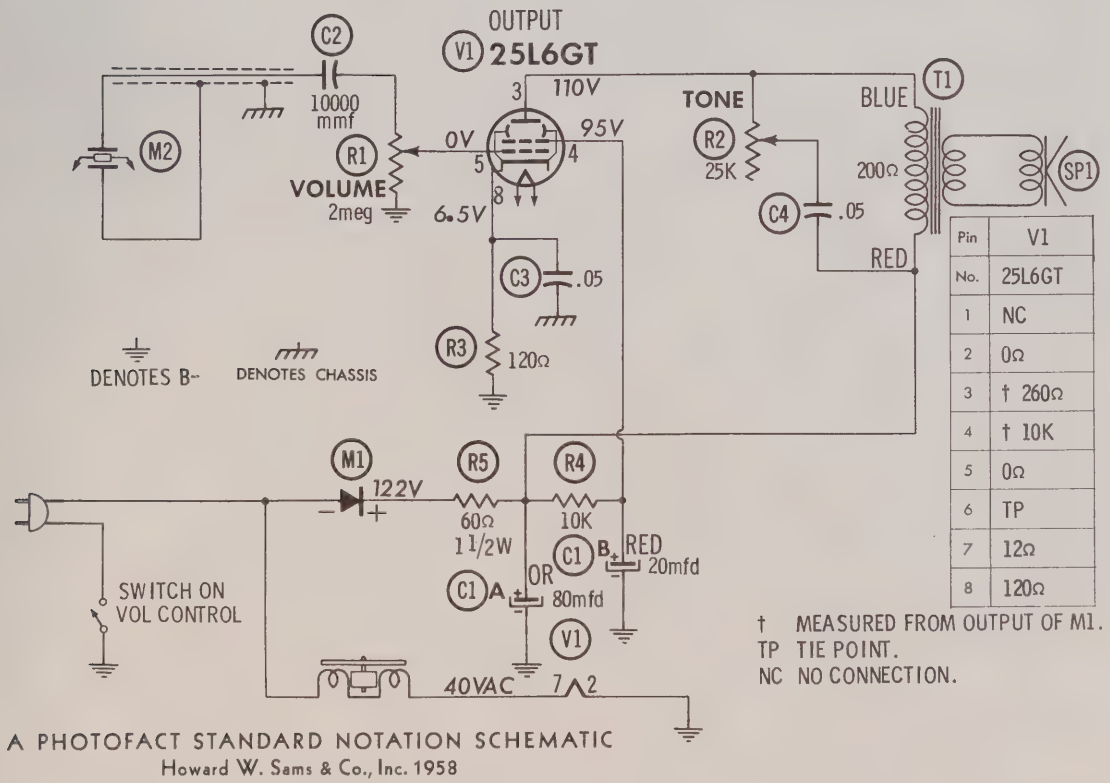
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

PHILCO MODEL E-1355

PHILCO MODEL E-1355

TRADE NAME	Philco Model E-1355	
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.	
TYPE SET	AC Operated Phono Amplifier With 3 Speed Automatic Record Changer	
TUBES (One)	Type 25L6GT Output	
POWER SUPPLY	105-125 Volts AC-60 Cycles	RATING .42 Amp. @ 117 Volts AC (45 Watts)

RECORD CHANGER — PHILCO MODEL M-38



Pin No.	V1 25L6GT
1	NC
2	0Ω
3	† 260Ω
4	† 10K
5	0Ω
6	TP
7	12Ω
8	120Ω

† MEASURED FROM OUTPUT OF M1.
TP TIE POINT.
NC NO CONNECTION.

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Howard W. Sams & Co., Inc. 1958

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H3

FOLDER 13

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	25L6GT	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	30-2575-42	PRS150V2080	BBRT44215	TCT3116	TDLT-4	FMT-315	TVA-2460
B	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	10000		30-1238-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C3	.05	400	30-4650-45	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C4	.05	400	30-4650-45	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2Meg	½	33-5588-5	B-76	A47-2Meg-Z	Q13-139	U55	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2	25K	½	33-5565-109	B-29		Q13-120	U28A	Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R3	120Ω		66-1128340	
R4	10K		66-3108340	

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R5	60Ω	1½	33-1334-18	Note 1

Note 1. Glass Ohm Type

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2900Ω	3-4Ω	32-8310-3	Z1101	A-3025	A-3332	22S45 ①	S-12X	① Drill new mounting hole.

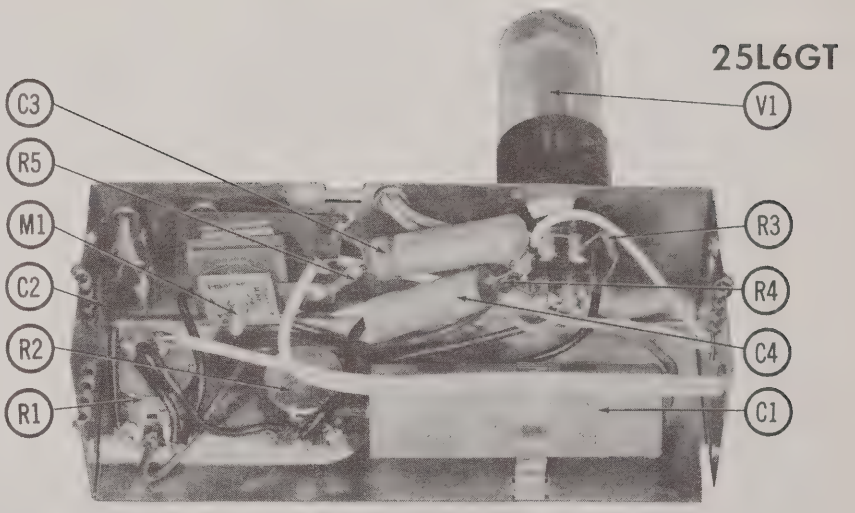
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	36-1654-4	4A1	

RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	PHILCO PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.054A	34-8030-1 ①	1386	RS065Q	65	① Alternate Part #34-8003-23

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	PHILCO PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M2	325-8014 *					* Includes needle.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	PHILCO PART No.	JENSEN PART No.	WALCO PART No.	
M3		† CRA-55 or ♦ CRA-55D	† W-64S	† Jewel ♦ Diamond
		† CRA-55LP or ♦ CRA-55LPD	† W-64MGS	

CABINETS & CABINET PARTS

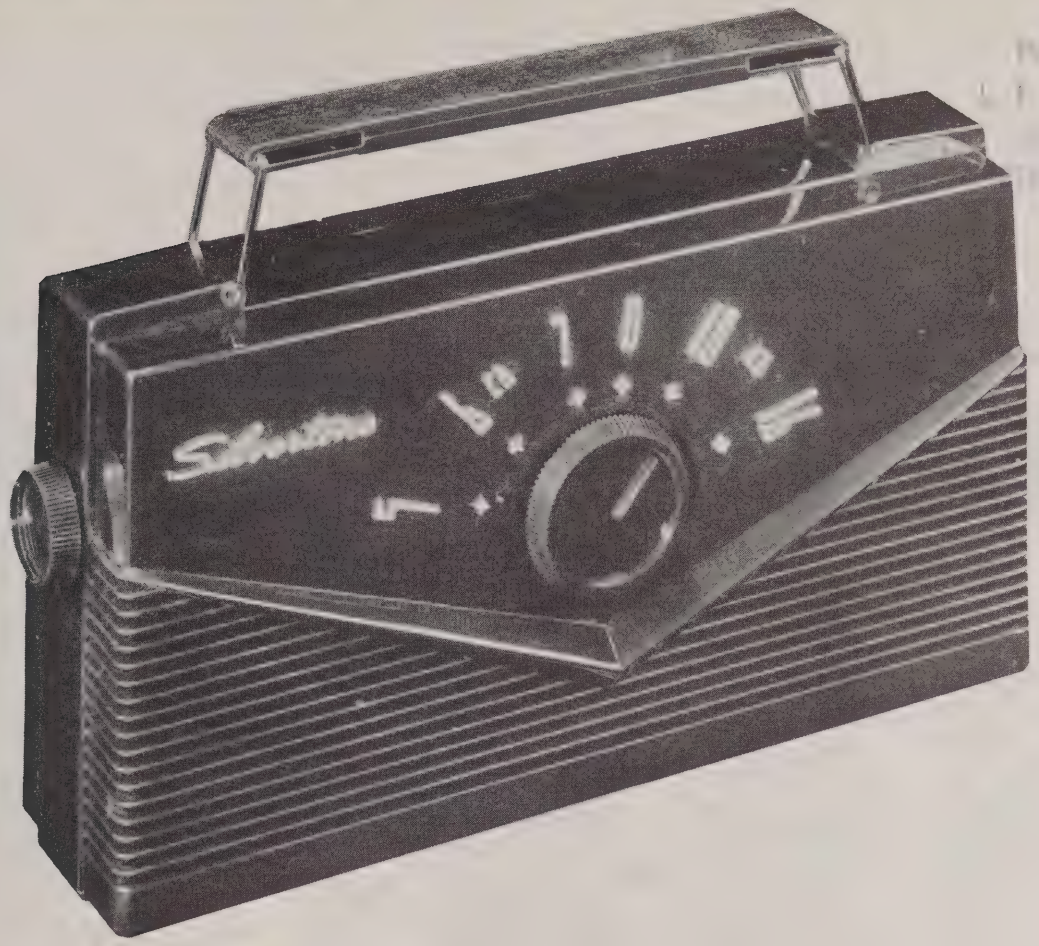
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knobs	54-6035-7	2 Used

PHOTOFACT* Folder

SILVERTONE MODELS 8210, 8211, 8212 (Ch. 528.53000)

SILVERTONE MODELS 8210, 8211, 8212 (Ch. 528.53000)



SILVERTONE MODELS 8210, 8211, 8212 (Ch. 528.53000)

TRADE NAME	Silvertone Models 8210, 8211, 8212 (Ch. 528.53000)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	Battery Operated Portable AM Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Output

POWER SUPPLY 1.5 Volts "A" Supply & 67.5 Volts "B" Supply RATING 250MA @ 1.5 Volts DC & 10.4MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST 535-1630 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to chassis.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1625KC	"	"	A5	"
3.		Loop	1400KC	1400KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		Loop	600KC	600KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Rock tuning gang while making adjustment.

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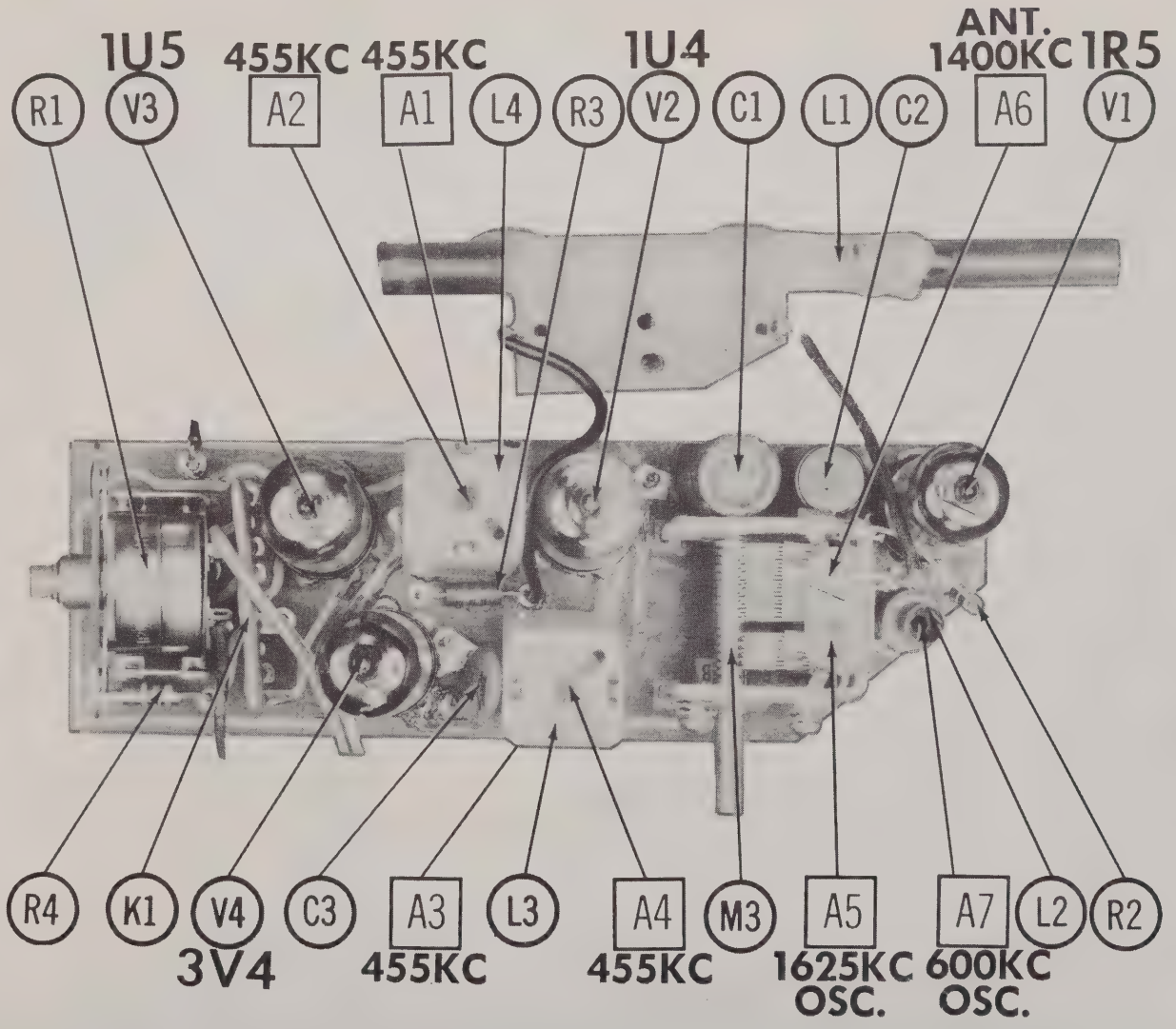


CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det.-AVC-AF Amp.	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	4	75	18-45-5	PRS150V4	BBR4-150	TC40	TD-4-150	MT-1504	TVA-1402

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	20-47-1			BC2S47J		ACE6147	2SE-S47	
C3	2000		15-20216	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	1Meg	½	24-262-0					Volume and switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SILVERTONE PART No.	NOTES
	OHMS	WATT		
R2	100K		60-10402	
R3	2.2Meg		60-22502	
R4	270Ω		60-27101	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	9700Ω	3-4Ω	80-432-1		A-2927	A-3329 ①	24S84	S-11Z	① Use original mounting frame.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	33-251-4	3A07	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	82-115-0				
L2	Osc. Coil	10-27-4				
L3	Input IF	10-63-2	16-6780	BC-356	13-PC7	
L4	Output IF	10-63-2	16-6780	BC-357	13-PC8	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	2000MMF, 150MMF, 10000MMF, 150MMF, 5000MMF, 10Meg, 4.7Meg, 1Meg, 3.3Meg	13-13-3	Sprague DT-1

BATTERIES

ITEM No.	VOLTAGE	SILVERTONE PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½V	6442	2IR		964		M20		20		
M2	67½V	6482		P45		477		M211P		211P	

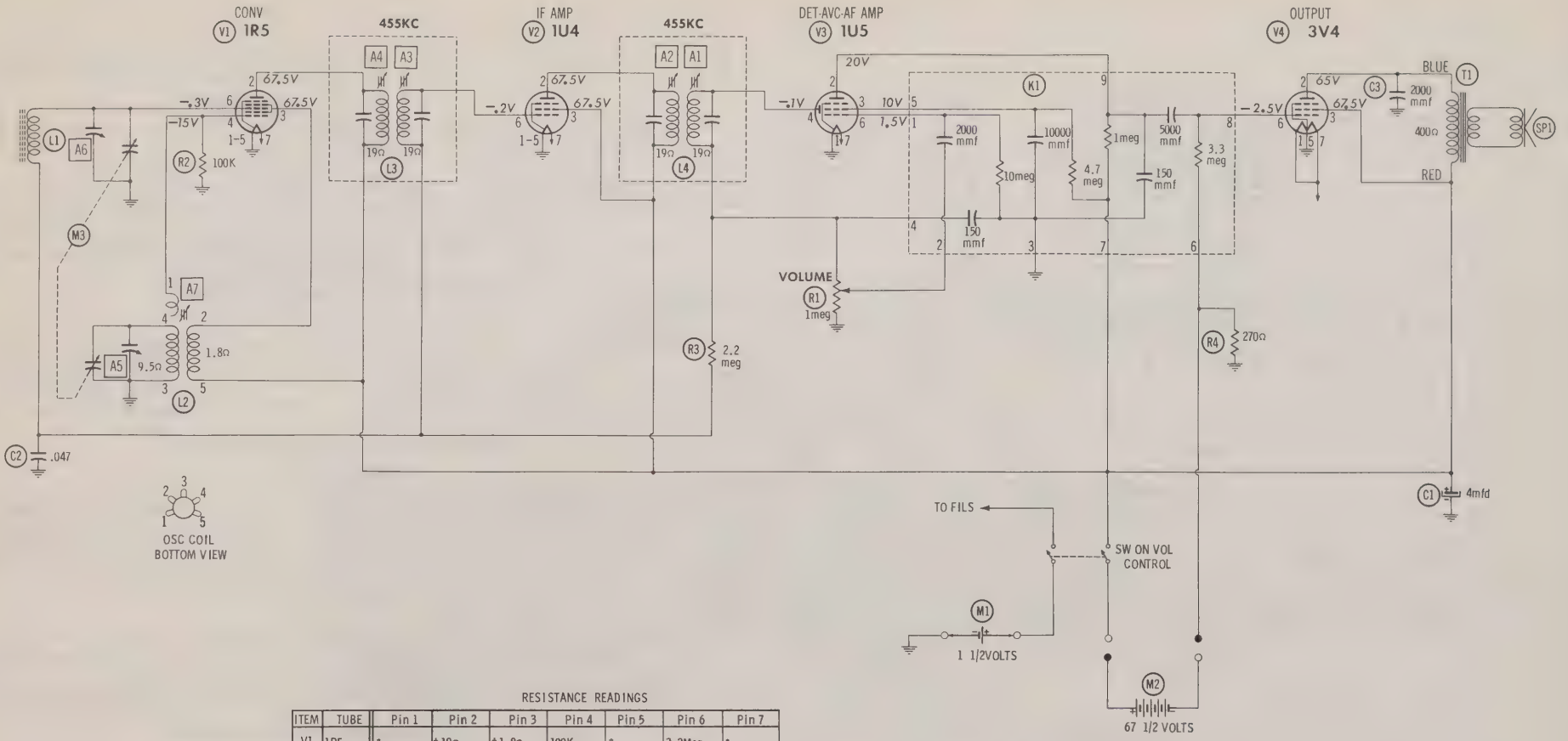
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Tuning Cap.	19-54-2	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	52-768-0	On-off-volume, Model 8210
Knob	52-769-0	On-off-volume, Model 8211
Knob	52-770-0	On-off-volume, Model 8212
Knob	52-765-0	Tuning, Model 8210
Knob	52-636-0	Tuning, Models 8211, 8212
Cabinet	42-5-1	Front Cover, Model 8210, brown
Cabinet	42-7-1	Front Cover, Model 8211, blue
Cabinet	42-9-1	Front Cover, Model 8212, red
Cabinet	42-6-1	Rear Cover, Model 8210, brown
Cabinet	42-8-1	Rear Cover, Model 8211, blue
Cabinet	42-10-1	Rear Cover, Model 8212, red
Handle	62-69-1	Model 8210
Handle	62-70-1	Models 8211, 8212



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	*	†19Ω	†1.8Ω	100K	*	3.2Meg	*
V2	1U4	*	†19Ω	†0Ω	0Ω	*	3.2Meg	*
V3	1U5	*	†1Meg	†4.7Meg	1Meg	0Ω	8Meg	*
V4	3V4	*	†400Ω	†0Ω	NC	*	3.3Meg	*

† MEASURED FROM POSITIVE SIDE OF C1.
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
NC NO CONNECTION.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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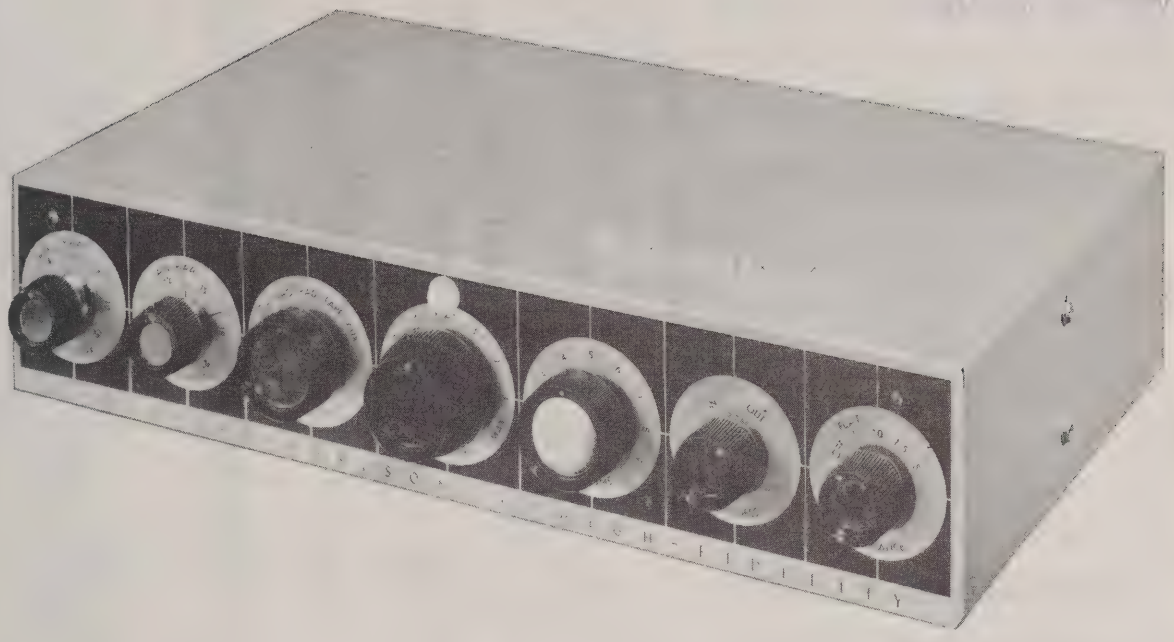
STROMBERG-CARLSON MODEL AE-426

STROMBERG-CARLSON MODEL AE-426



STROMBERG-CARLSON MODEL AE-426

TRADE NAME	Stromberg-Carlson Model AE-426
MANUFACTURER	Stromberg-Carlson Co., Sound Div., 1225 Clifford Ave., Rochester 21, N. Y.
TYPE SET	AC Operated Equalizer Preamplifier
TUBES (Four)	Types 12AY7 Phono Preamplifier, 12AY7 AF Amplifier, 12AU7 AF Amplifier, 12AL5 Rectifier
POWER SUPPLY	110-120 Volts AC-50/60 Cycles RATING .29 Amp. @ 117 Volts AC (18 Watts)

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FOLDER 15

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamplifier	12AY7	
V2	AF Amplifier	12AY7	
V3	AF Amplifier	12AU7	
V4	Rectifier	12AL5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Stromberg-Carlson PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	40	250		PRS250V40	BR4025	TC58	TD-40-250	MT-2540	TVA-1511
C2A	■15	350		AFH3-34	C0254	FP376.1	TMT-33	T-750	R2506 *
B	▲15	300							
C	15	250							
C3A	■200	150		AFH2-23	XB0189		TMD-21	D-090	R2507 *
B	▲200	150						MT-1580	
C4	50	6		XPP6V50	BBR50-6	TT6X50	TD-50-6	MMT6-50	TVA-1100
C5A	▲20	150		AFH2-08	XB0091	FP208	TMD-6	D-040	TVL-2415
B	■20	150							
C6A	▲20	150		AFH2-08	XB0091	FP208	TMD-6	D-040	TVL-2415
B	■20	150							
C7	50	6		XPP6V50	BBR50-6	TT6X50	TD-50-6	MMT6-50	TVA-1100
C8	50	6		XPP6V50	BBR50-6	TT6X50	TD-50-6	MMT6-50	TVA-1100
C9	50	6		XPP6V50	BBR50-6	TT6X50	TD-50-6	MMT6-50	TVA-1100
C10	4	250		PRS250V4	BBR4-250	TC50X	TD-4-450	MT-4504	TVA-1501

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	Stromberg-Carlson PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C11	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C12	.022	400		P488N-022	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C13	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C14	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C15	470			SI 470	D6-471	LT6T47	GP-470	UC-5347	5GA-T47	
C16	.0047	400		P488N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C17	100			SI 100	D6-101	LT6T1	GP-100	UC-5311	5GA-T1	
C18	.15	400		P488N-15		CUB4P15		GEM-4015	4TM-P15	
C19	220			SI 220	D6-221	LT6T22	GP-220	UC-5322	5GA-T22	
C20	.0022	400		P488N-0022	D6-222	CUB6D22	GP-2200	GEM-6222	6TM-D22	
C21	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C22	.001	400		P488N-001	D6-102	CUB6D1	GP-1000	GEM-421	6TM-D1	
C23	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C24	.15	400		P488N-15		CUB4P15		GEM-4015	4TM-P15	
C25	.0022	400		P488N-0022	D6-222	CUB6D22	GP-2200	GEM-6222	6TM-D22	
C26	.001	400		P488N-001	D6-102	CUB6D1	GP-1000	GEM-421	4TM-D1	
C27	470			SI 470	D6-471	LT6T47	GP-470	UC-5347	5GA-T47	
C28	27			SI 27	D6-270	LTQ47	GP-27	UC-5427	5GA-Q27	
C29	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C30	.0033	400		P488N-0033	D6-332	CUB6D33	GP-3300	GEM-6233	6TM-D33	
C31	.15	400		P488N-15		CUB4P15		GEM-4015	4TM-P15	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Stromberg-Carlson PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	145643			Q11-133		Volume
B	1Meg	½				M13-137		Volume
C	100K	½				M13-128		Volume
R2A	5Meg	½	145645	F1-83		♦	■ UE3756	Bass
B	5Meg	½		R2-83				Treble
R3A	1Meg	½	145644	AB-69	A47-1Meg-S	Q11-137	U54	De-Emphasis
B	Shaft			AK-7	FS-3	Not Req.	Not Req.	
R4A	1Meg	½	145644	AB-69	A47-1Meg-S	Q11-137	U54	Turnover
B	Shaft			AK-7	FS-3	Not Req.	Not Req.	

♦ Concentrikit Equivalent K-6 Kit, Base Elements and Shafts: B13-141, R14-019 (Panel)
B13-141, R2-103 (Rear)

■ STA-LOC Equivalent FB56A, OS56A, RU50A, IS1000

PARTS LIST AND DESCRIPTIONS (Continued)
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Stromberg-Carlson PART No.	NOTES
R5	56K			
R6	220K			
R7	56K			
R8	220K			
R9	10K			
R10	1Meg			
R11	1Meg			
R12	220K			
R13	470K			
R14	220K			
R15	22K			
R16	220K			
R17	10K			
R18	100K			
R19	1Meg			
R20	470K			
R21	470K			
R22	470K			
R23	1Meg			
R24	470K			
R25	220K			
R26	4700Ω			
R27	22K			
R28	220K			
R29	220K			
R30	4700Ω			
R31	5.6Meg			
R32	5.6Meg			
R33	5.6Meg			
R34	10K			
R35	100K			
R36	220K			
R37	5600Ω			
R38	10K			
R39	1Meg			
R40	470Ω			
R41	10K			
R42	470Ω			
R43	1Meg			
R44	125Ω	5		Note 1
R45	100Ω			
R46	10K	1		
R47	10K	1		
R48	22K			
R49	22K			
R50	33K			
R51	33K			
R52	470K			Note 2

Note 1. In series 103 and later, R44 is a temp. comp. unit, approx. 770Ω@25 C. (Part #149636)
Note 2. Some versions may use 1meg in this application

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	Stromberg-Carlson PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .29A	90VAC @ .010A Tap @ 60V @ .150A			161790					

TONE CHOKE

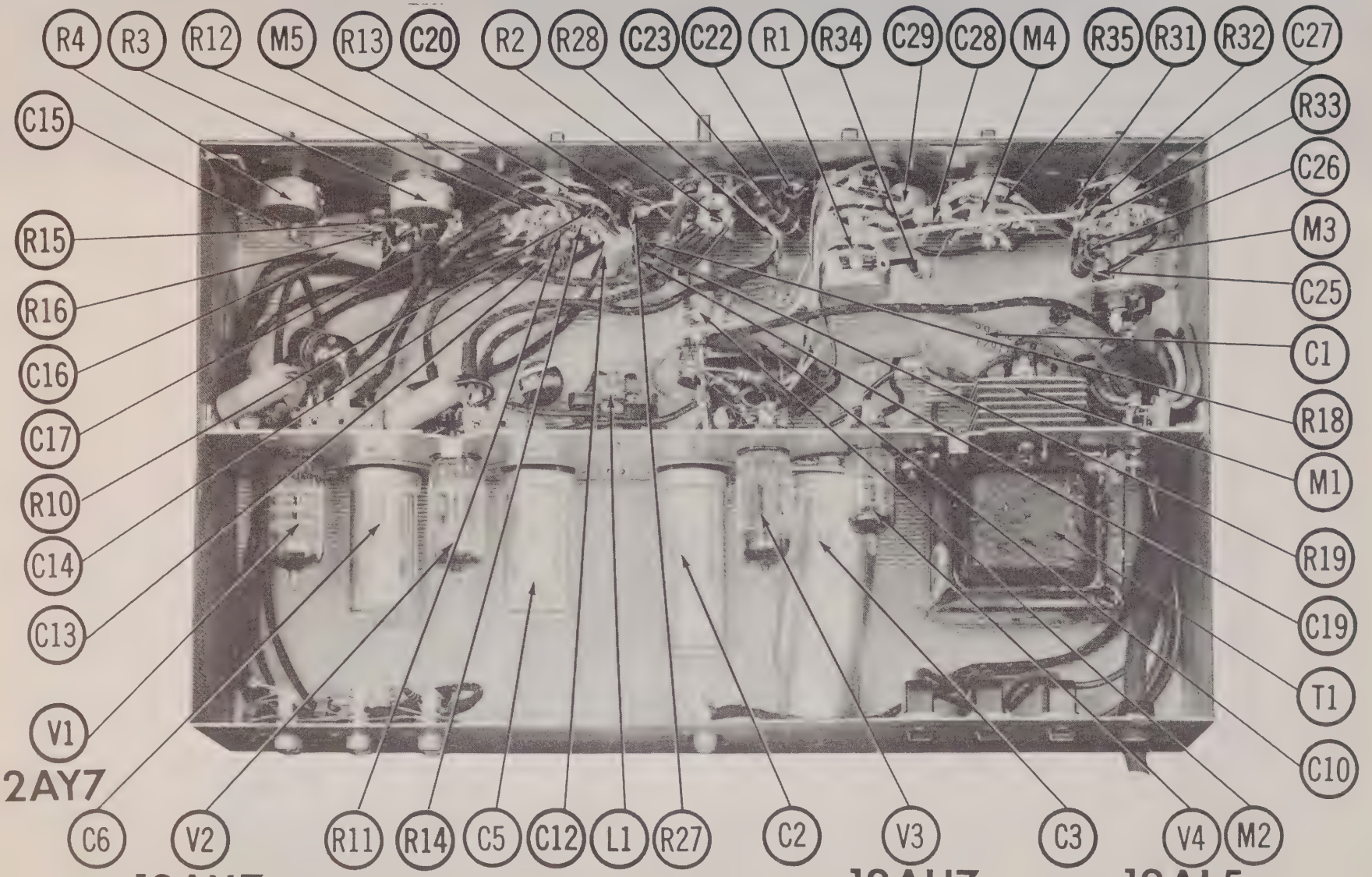
ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	Stromberg-Carlson PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L1	0A	1400Ω	2Hy						

RECTIFIER

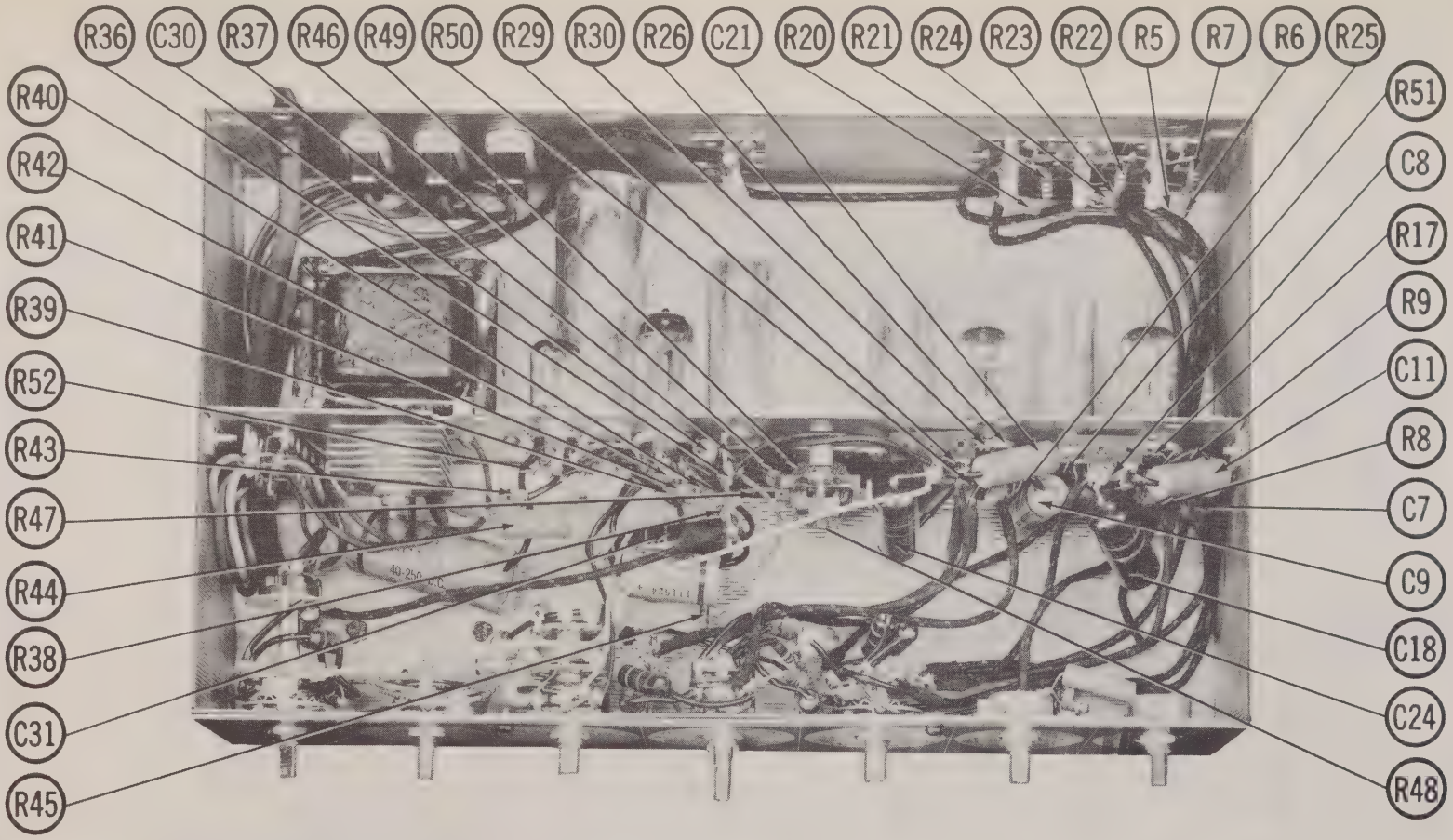
ITEM No.	RATING CURRENT (Measured)	Stromberg-Carlson PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.150A		1006A	RS200	200	

MISCELLANEOUS

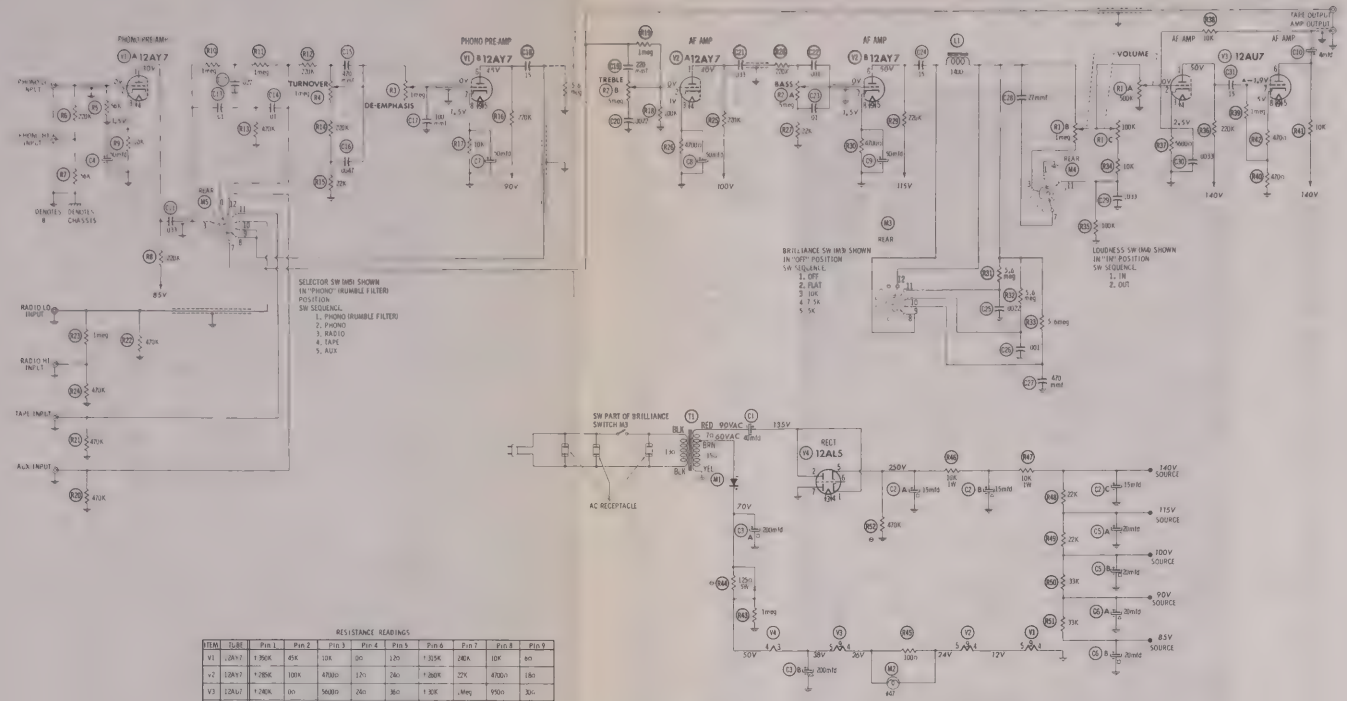
ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M2	Pilot Light		#47
M3	Switch	158683	Brilliance (Rotary Wafer Type)
M4	Switch	158685	Loudness (Rotary Wafer Type)
M5	Switch	158684	Selector (Rotary Wafer Type)



CHASSIS BOTTOM VIEW



CHASSIS BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AY7	1.35K	45K	10K	0Ω	12Ω	1.35K	2KΩ	10K	0Ω
V2	12AY7	1.28K	10K	47KΩ	12Ω	2kΩ	1.28K	22K	47KΩ	1kΩ
V3	12AU7	1.2KΩ	0Ω	56KΩ	2kΩ	3kΩ	1.3K	1Meg	95Ω	30Ω
V4	12AL5	22KΩMin	22KΩMin	3kΩ	68Ω	22KΩMin	NC	0Ω		

† MEASURED FROM PIN 5 OF V4
* MEASURED FROM PIN 3 OF V3
▲ MEASURED FROM PIN 8 OF V3
NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements

Howard W. Sams & Co., Inc. 1958

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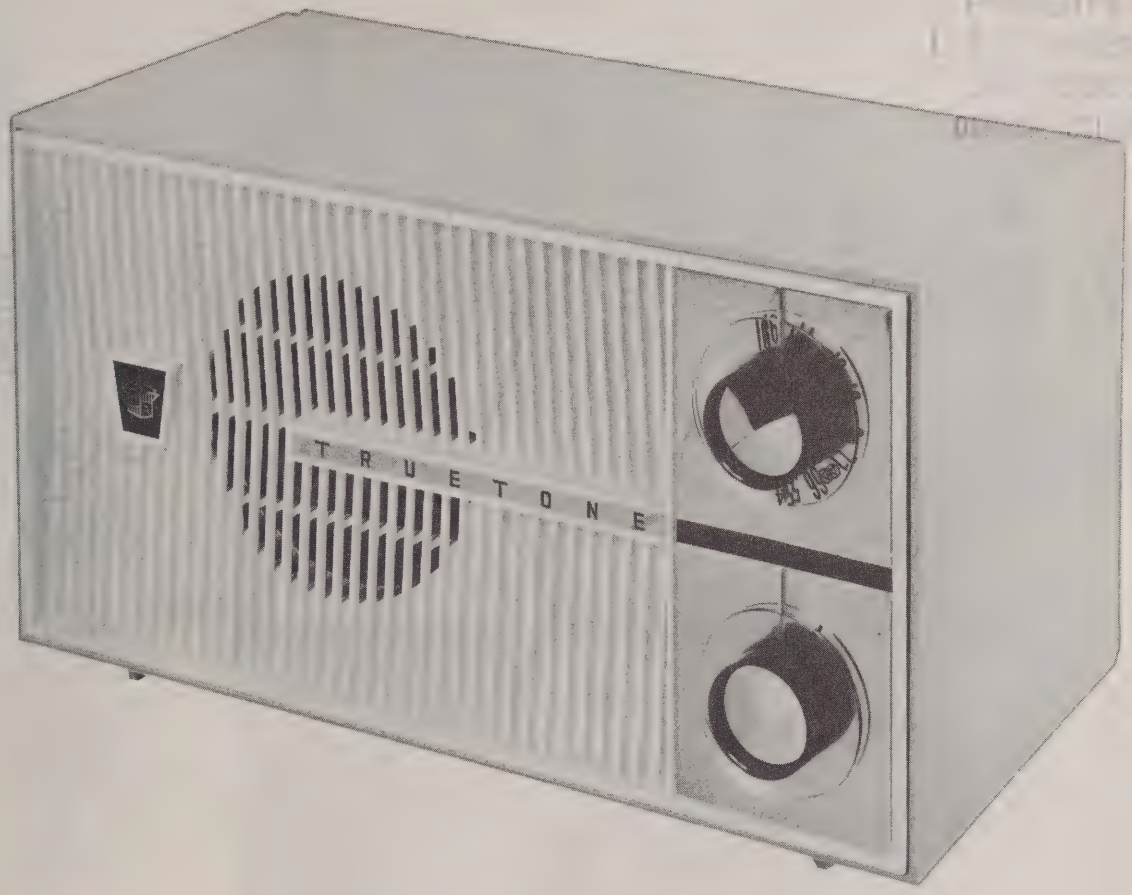
*TRADE MARK

TRUETONE MODELS D2832A, D2834A

TRUETONE MODELS D2832A, D2834A



TRUETONE MODELS D2832A, D2834A

TRADE NAME	Truetone Models D2832A, D2834A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC-DC Operated AM Receiver
TUBES (Six)	Types 12BA6 Mixer, 12BF6 Oscillator, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 35C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING .27 Amp. @ 117 Volts AC (27 Watts)
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 1 (grid) of 12BA6 (V1). Low side to B-.	455KC (400∿ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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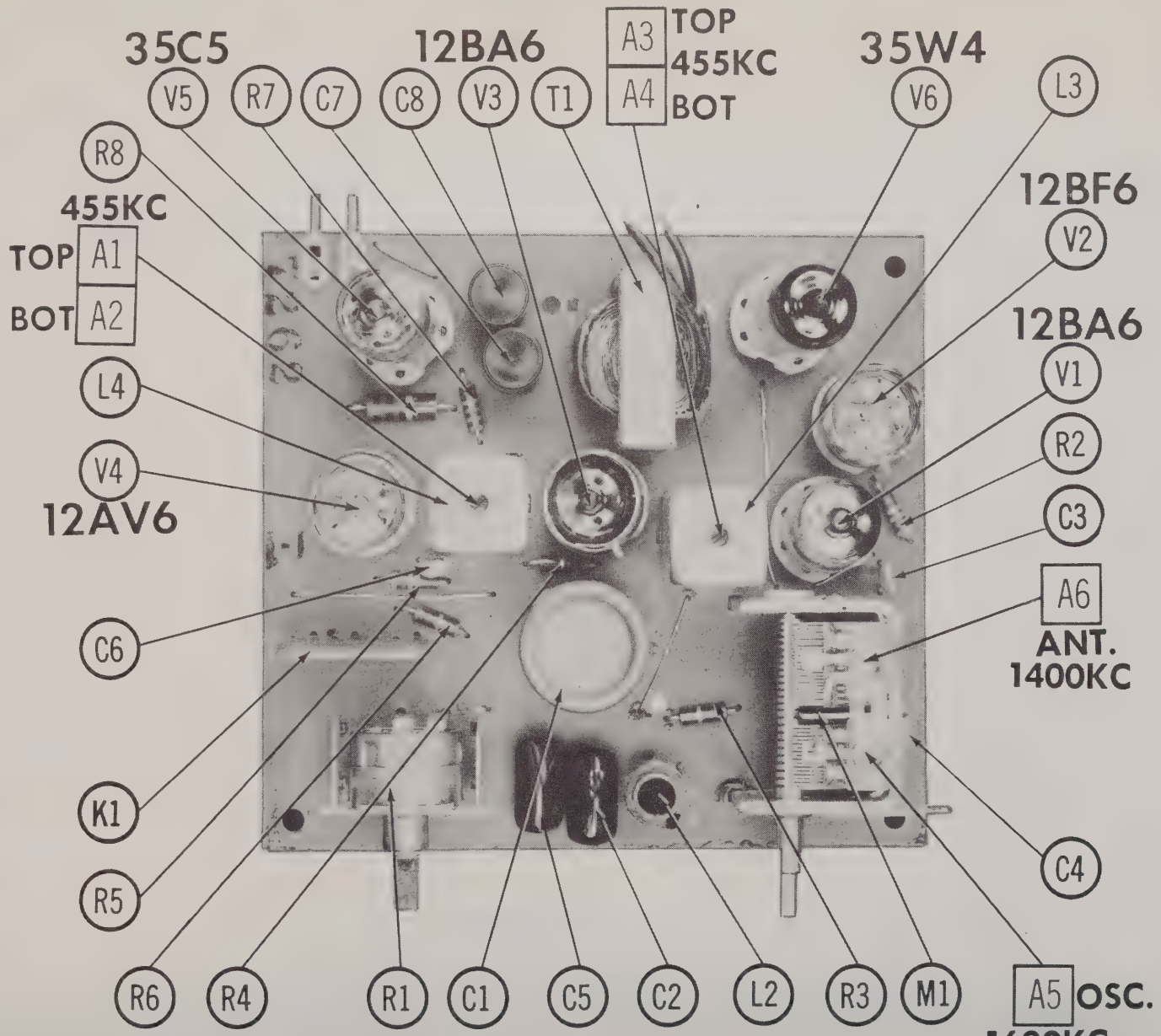


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mixer	12BA6	
V2	Oscillator	12BF6	
V3	IF Amplifier	12BA6	
V4	Det. -AVC-AF Amp.	12AV6	
V5	Output	35C5	
V6	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	45X435	PRS150V5030	BBRD5315	TCD497	TDLD-8	MTD-301	TVA-2450
B	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	46X486	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C3	470		47X712	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C4	47		47X710	NPO-DI 47	DD-470	L10Q47	ED-47	ZT-5447	5TCC-Q47	10%
C5	.047	200	47X486	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C6	220		47X711	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C7	.022	400	46X434			BC2S22J		ACE612	4SE-S22	
C8	.022	400	46X434			BC2S22J		ACE612	4SE-S22	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	500K	½	36X398					Volume and switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRUETONE PART No.	NOTES
	OHMS	WATT		
R2	47K		B84473	
R3	8.2Meg		B84825	
R4	120Ω		B84121	
R5	47K		B84473	
R6	1.5Meg		B84155	
R7	180Ω		B84181	
R8	1200Ω	1	C84122	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2700Ω	6-8Ω	51X184						

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	4"	PM	6-8Ω	12A542 ①	4A1Z6.7	① Some versions use 2 speakers.
	4"	PM		12A541 ②		② Used in Model D2834A.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	9A2399				Model D2832A
	Loop Stick	9A2405				Model D2834A
L2	Osc. Coil	9A2396				
L3	Input IF	9A2401	16-6780	BC-356	13-PC9	
L4	Output IF	9A2402	16-6780	BC-357	13-PC10	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA	
K1	Audio Coup. Net.	5000MMF, 220MMF, 250MMF, 5000MMF, 470K, 470K, 6.8Meg	76X12	Centralab	PC-158
				Erie	1408-02

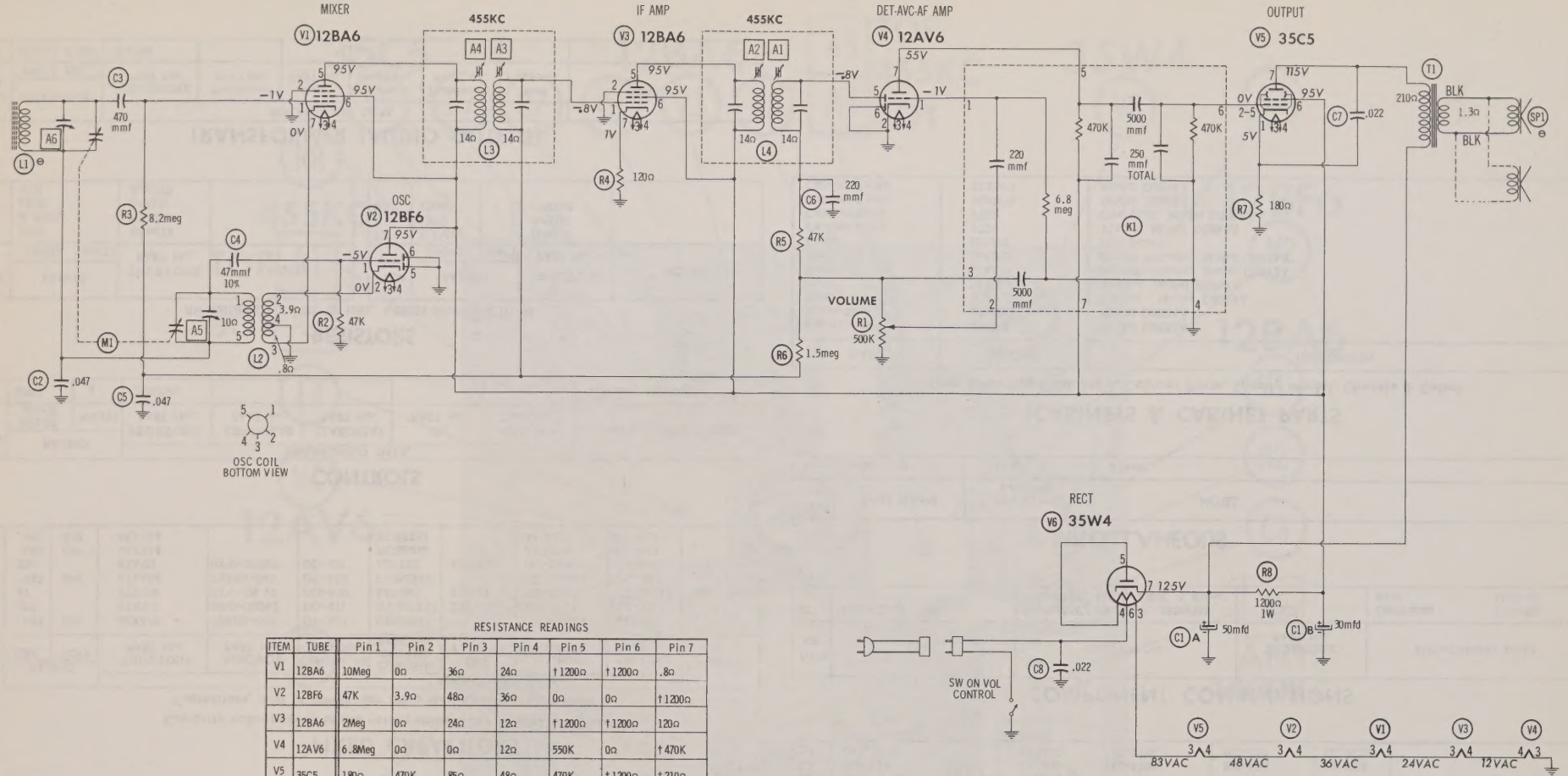
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M1	Tuning Cap.	14A231	2 Gang

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Escutcheon	45X1311	Model D2832A
Escutcheon	45X1310	Model D2834A
Knob	10A902-1	Tuning , Model D2832A
Knob	10A902-2	Tuning, Model D2834A
Knob	10A904	On-off-volume, Model D2832A
Knob	10A903	On-off-volume, Model D2834A
Knob	10A901	Dial Scale
Cabinet Shell	#700	Flame, Model D2832A
Cabinet Shell	#702	Charcoal, Model D2834A
Cabinet Front	55X508	Model D2832A
Cabinet Front	55X507	Model D2834A



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BA6	10Meg	0Ω	36Ω	24Ω	†1200Ω	†1200Ω	.8Ω
V2	12BF6	47K	3.9Ω	48Ω	36Ω	0Ω	0Ω	†1200Ω
V3	12BA6	2Meg	0Ω	24Ω	12Ω	†1200Ω	†1200Ω	120Ω
V4	12AV6	6.8Meg	0Ω	0Ω	12Ω	550K	0Ω	†470K
V5	35C5	180Ω	470K	85Ω	48Ω	470K	†1200Ω	†210Ω
V6	35W4	NC	NC	85Ω	120Ω	120Ω	110Ω	20K(Min)

† MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION.

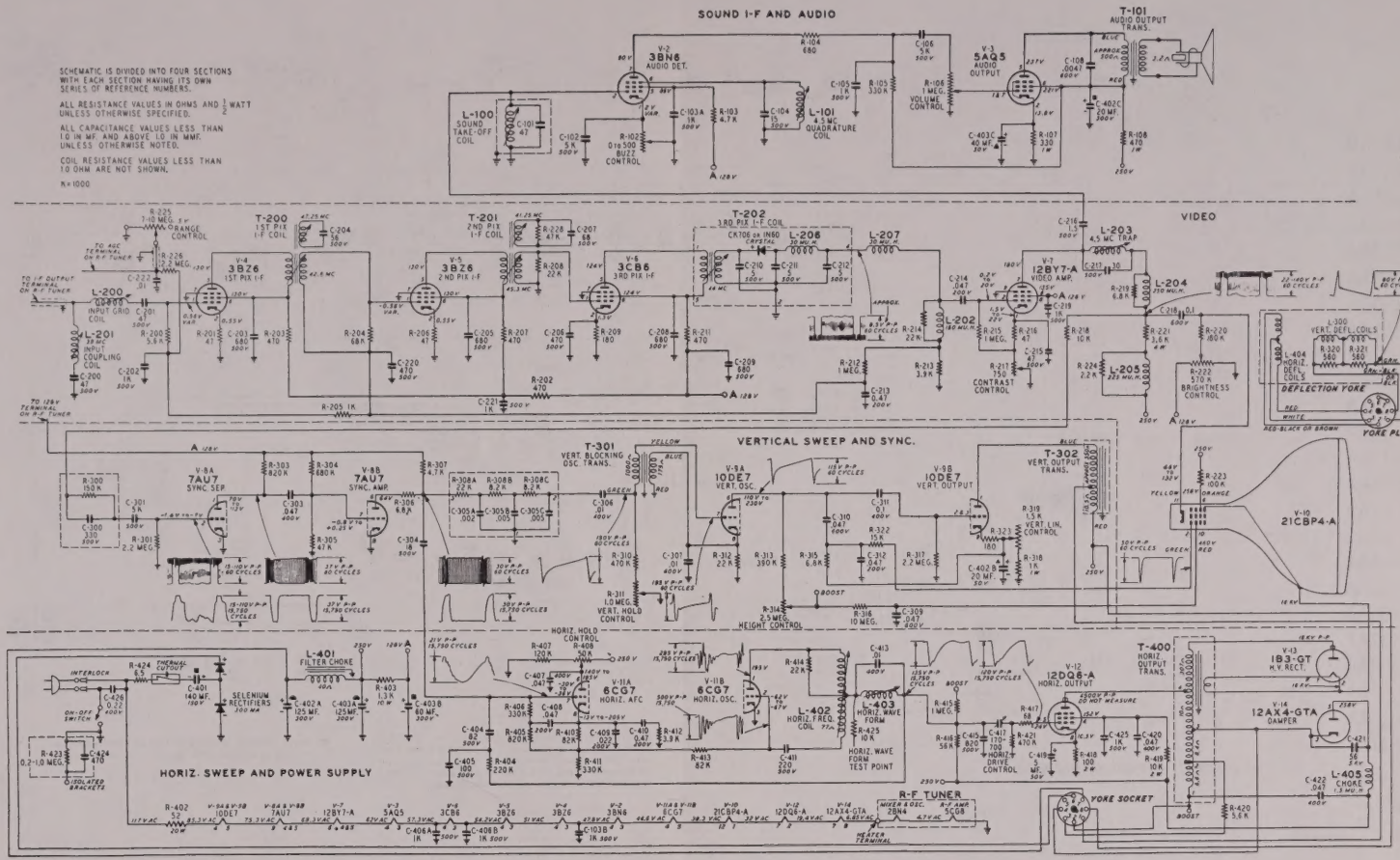
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

CORONADO
MODELS
TV2-9465A
TV2-9466A
TV2-9470A
TV2-9471A
TV2-9475A
TV2-9476A
TV2-9480A
TV2-9481A


SOUND I-F AND AUDIO
VIDEO
VERTICAL SWEEP AND SYNC.
HORIZ. SWEEP AND POWER SUPPLY
R-F TUNER
SCHEMATIC IS DIVIDED INTO FOUR SECTIONS WITH EACH SECTION HAVING ITS OWN SERIES OF REFERENCE NUMBERS.
ALL RESISTANCE VALUES IN OHMS AND 1/2 WATT UNLESS OTHERWISE SPECIFIED.
ALL CAPACITANCE VALUES LESS THAN 1.0 IN MF. AND ABOVE 1.0 IN MMF. UNLESS OTHERWISE NOTED.
COIL RESISTANCE VALUES LESS THAN 1.0 OHM ARE NOT SHOWN.
K=1000
T-101 AUDIO OUTPUT TRANS.
V-2 3BN6 AUDIO DET.
V-3 5AQ5 AUDIO OUTPUT
L-100 SOUND TAKE-OFF COIL
L-101 4.5 MC QUADRATURE COIL
VOLUME CONTROL
T-200 1ST PIX I-F COIL
T-201 2ND PIX I-F COIL
T-202 3RD PIX I-F COIL
V-4 3BZ6 1ST PIX I-F
V-5 3BZ6 2ND PIX I-F
V-6 3CB6 3RD PIX I-F
V-7 12BY7-A VIDEO AMP.
L-200 INPUT GRID COIL
L-201 INPUT COUPLING COIL
L-202 L-203 4.5 MC TRAP
L-204 L-205
CONTRAST CONTROL
BRIGHTNESS CONTROL
DEFLECTION YOKE
YOKE PLUG
V-8A 7AU7 SYNC. SEP.
V-8B 7AU7 SYNC. AMP.
T-301 VERT. BLOCKING OSC. TRANS.
V-9A 10DE7 VERT. OSC.
V-9B 10DE7 VERT. OUTPUT
T-302 VERT. OUTPUT TRANS.
V-10 21CBP4-A
VERT. HOLD CONTROL
VERT. LIN. CONTROL
HEIGHT CONTROL
L-401 FILTER CHOKE
SELENIUM RECTIFIERS
V-11A 6CG7 HORIZ. AFC
V-11B 6CG7 HORIZ. OSC.
L-402 HORIZ. FREQ. COIL
L-403 HORIZ. WAVE FORM
HORIZ. WAVE FORM TEST POINT
HORIZ. HOLD CONTROL
V-12 12DQ6-A HORIZ. OUTPUT
T-400 HORIZ. OUTPUT TRANS.
V-13 1B3-GT H.V. RECT.
V-14 12AX4-GTA DAMPER
L-405 CHOKE
HORIZ. DRIVE CONTROL
YOKE SOCKET
INTERLOCK
ON-OFF SWITCH
THERMAL CUTOUT
ISOLATED BRACKETS
RANGE CONTROL
TO AGC TERMINAL ON R-F TUNER
TO I-F OUTPUT TERMINAL ON R-F TUNER
TO 12V TERMINAL ON R-F TUNER
HEATER TERMINAL
V-1 V-2 V-3 V-4 V-5 V-6 V-7 V-8 V-9 V-10 V-11 V-12 V-13 V-14
117 V AC

SCHEMATIC COURTESY OF GAMBLE-SKOGMO INC.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SPARTAN CHASSIS
U25-01AA
U25-02AA
U25-03AA
U25-04AA
U25-05AA
U25-06AA
U25-07AA
U25-08AA
U25-09AA
U25-10AA
U25-11AA
V25-01AA
V25-02AA
V25-03AA
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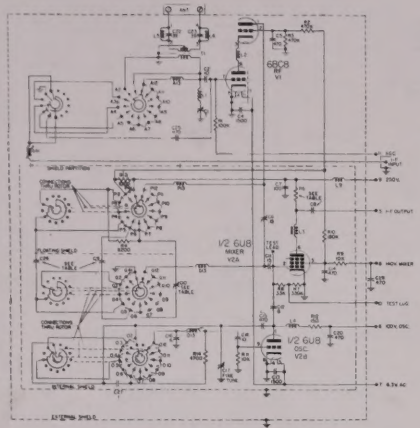
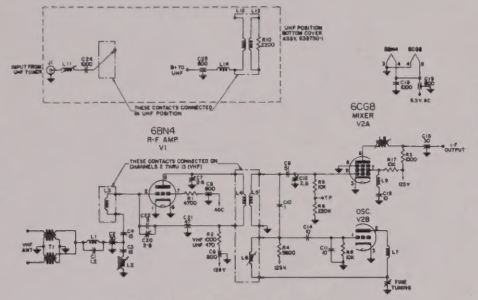
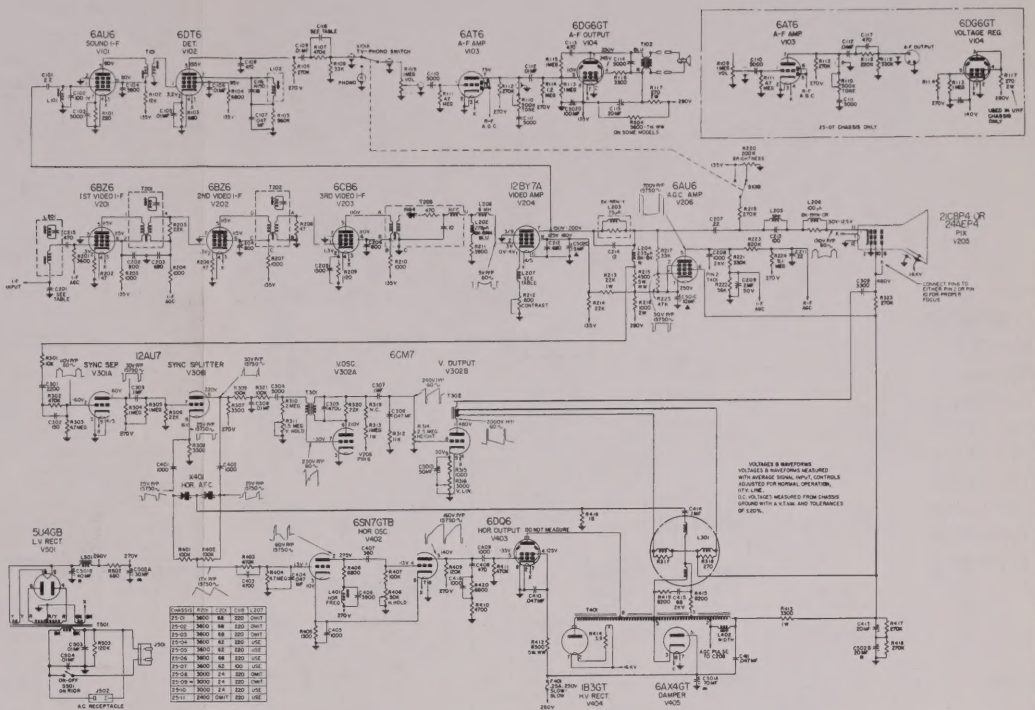
V25-07AA
V25-08AA
V25-09AA
V25-10AA
V25-11AA



700584-6 TUNER SCHEMATIC



700624/700627 TUNER SCHEMATIC



On early version chassis using Part No. 360700-1 High Voltage Transformer C415 and R419 were not used, R415 was 2700 ohms, the deflection yoke was connected to term. 4 of T401 and a 15 ohm resistor was used between pin 8 of V403 and ground.

On early version, R410 was 12K and was connected from C408 to ground, R420 and C416 were not used.

SCHEMATIC COURTESY OF SPARTAN DIV., THE MAGNAVOX CO.

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